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ILLINOIS' TIMBER RESOURCES

FOREWORD

This is a report on the second comprehensive inventory of Illinois' forest resource. The first inventory, made in 1947 and 1948, was reported by D. B. King and R. K. Winters of the Central States Forest Experiment Station under the title "Forest Resources and Industries of Illinois," and published as Bulletin 562 of the University of Illinois Agricultural Experiment Station. Both surveys were a part of the nationwide Forest Survey program authorized by the McSweeney-McNary Forest Research Act of 1928. The field work of the second survey began in September 1961 and was completed in November 1962.

Since the first survey, changes in land use, timber cut, growth, and mortality have modified the forests (type map on inside of back cover). This report weighs these changes and points out trends that may affect future supplies for local wood-using industries. Some of the data have been presented previously in Research Notes of the Central States Forest Experiment Station (see outside back cover).

The survey was made by the Lake States Forest Experiment Station, St. Paul, Minn., and the Central States Forest Experiment Station, Columbus, Ohio. The Illinois Department of Conservation and the University of Illinois assisted in collecting timber cut and product data. The North Central Region of the U.S. Forest Service collected data for the Shawnee National Forest, and the Agricultural Stabilization and Conservation Service provided the aerial photos used.

Clarence D. Chase, leader of the Forest Survey Project at St. Paul, directed the survey. He was assisted by Paul DeBald, field supervisor, and his crew of Richard Groff, Eugene Carpenter, Harry Nickless, Melvin Goldie, David Benson, Donald Rardin, and John Rice. Arthur Horn of the Lake States Station compiled the timber cut and product data, and Burton Essex the forest inventory and growth data.

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ILLINOIS' TIMBER RESOURCE

by

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LAKE STATES FOREST EXPERIMENT STATION[2]

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[2] The Lake States Forest Experiment Station is located at St. Paul, Minn., and maintained in cooperation with the University of Minnesota.

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THE TIMBER RESOURCE IN BRIEF

The forests of Illinois seem to have changed little since the Forest Survey of 1948. According to the 1962 Survey, they still occupy 11 percent of the total land area, and timber volume is nearly as much as in 1948. However, many important changes actually have taken place, and they will have a measurable effect on the forests and the wood-using industries that they support.

The volume per acre of sound wood is greater today than it has been in many years. However, about 80 percent of the present growth is taking place in trees less than 11 inches in diameter.

Industries such as veneer and cooperage that depend primarily on larger trees will find it more and more difficult to obtain the high-quality logs they need. Sawtimber volume has decreased 16 percent since the last survey because growth has not been sufficient to replace the sawtimber removed in harvesting, land clearing, and death from natural causes. Net growth has been reduced nearly as much by high mortality as by heavy cutting. Recent mortality caused by diseases such as Dutch elm and oak wilt is nearly as great as the mortality from all causes recorded at the time of the previous survey. Most of the volume lost was large sawtimber. Volume in trees 19 inches and larger declined an average of 108 million board feet per year between 1948 and 1962. As a result, the yield of high-grade material is lower now than several years ago. However, there has been no decline in potential quality. In fact, the volume in good-quality, young sawtimber trees is increasing and, if these trees are allowed to grow into larger diameter classes, the volume of grade F1 and F2 logs will increase.

Just as serious as the loss of sawtimber volume in the larger trees is the declining productivity of older stands. These stands have been cut over several times to remove better-quality trees. The remaining trees are defective and rough, with a large proportion of low-grade wood that adds little value to the forest resource. Slow-growing, low-quality trees are occupying space that could better be used by young, thrifty saplings. The wood that could be cut from these deteriorating stands, plus the wood from thinnings and improvement cuttings in younger stands, would amount to 112 million cubic feet annually. This desirable cut is nearly four times the present timber harvest.

Although the amount of wood harvested from Illinois' forests in 1961 is less than that of 1947, the production of nearly all major commodities is up. Lumber sawn by local mills has increased, and 1961 production was 22 percent higher than in 1947. Veneer and cooperage log production has risen also, but not nearly as fast as the harvest of pulpwood. The cut of pulpwood has more than doubled since the last survey. If this trend continues as expected, pulpwood will soon become second only to lumber in total volume of product. The overall decline in timber products output is primarily the result of declining fuelwood use. Today's fuelwood production is a little less than half of what it was in 1947.

PRESENT TIMBER SUPPLY

Timber Volumes Decreasing

Because Illinois land is relatively flat and fertile, most of it is in agriculture. Forests occupy only 11 percent of the total land area (fig. 1). These forests support a growing-stock volume of 2,344 million cubic feet—3 percent less than in 1948. Most of this decline can be attributed to a moderate drop of 180,000 acres in the area of commercial forest land. Although average volume per acre increased between surveys, it was not enough to offset this acreage loss.

Poletimber trees make up 34 percent of the forests' total live tree volume (fig. 2). Their volume has increased from 798 to 821 million cubic feet. Sawtimber trees still make up 63 percent of the total live tree volume, but their numbers have been decreasing. Because cutting has been concentrated in the larger trees, Illinois forest stands average a little younger now than they did in 1948.

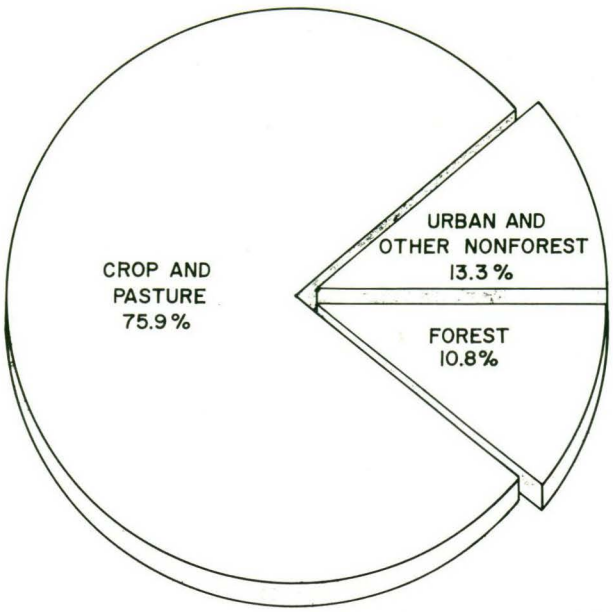

Figure 1.—Distribution of land area by use classes, 1962.

Nearly 70 percent of the State's growing-stock volume is in the Claypan and Southern Survey Units —roughly the southern third of the State (fig. 3). The combined wood volume of these two units amounted to 1,616 million cubic feet in 1962, an increase of nearly 9 percent. The increase was due in part to a slight enlargement in the area of commercial forest land. More important, however, was the increasing volume in existing stands brought on by accumulating timber growth. In the two southern units average volume per acre increased from 619 to 659 cubic feet. The following tabulation shows the change in growing stock volume by survey unit.

Survey Unit	Million cubic feet in— 1948	1962	Change (percent)
Prairie	931.0	728.0	–22
Claypan	812.4	929.0	+14
Southern	671.8	687.2	+ 2
Total	2,415.2	2,344.2	– 3

Illinois forests are predominantly hardwood. Nearly 42 percent of the total growing-stock volume in the State is in the white and red oaks. However, the composition is changing. Volume of the white oak group dropped 139 million cubic feet between surveys, and red oak declined 68 million cubic feet (fig. 4). Through the years the oaks have been the species most sought by local forest industries. In 1961, they made up almost 46 percent of the total growing-stock harvest. Coming in rapidly to fill the void left by the oaks is a group of species labeled "other hardwoods."

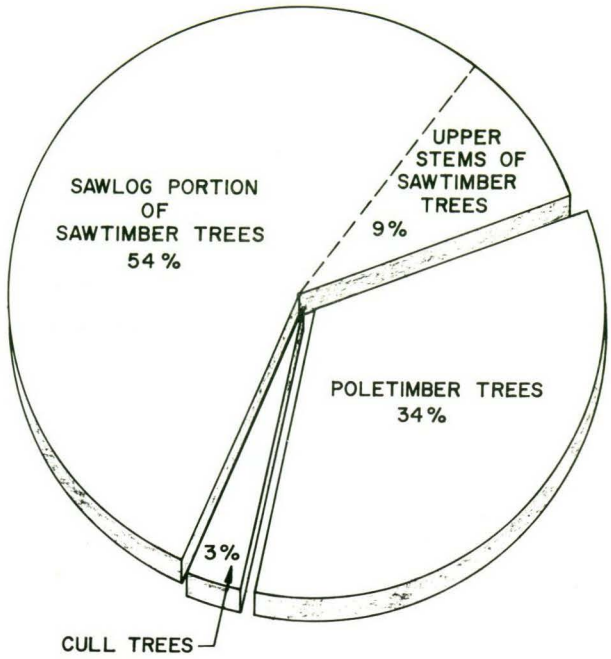

Figure 2.—Proportion of live timber on commercial forest land by kinds of material, 1962.

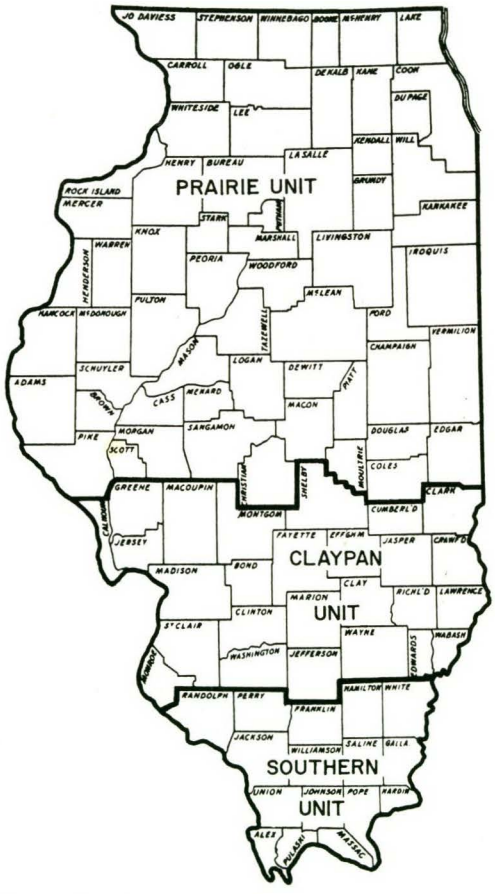

Figure 3.—Forest Survey units in Illinois.

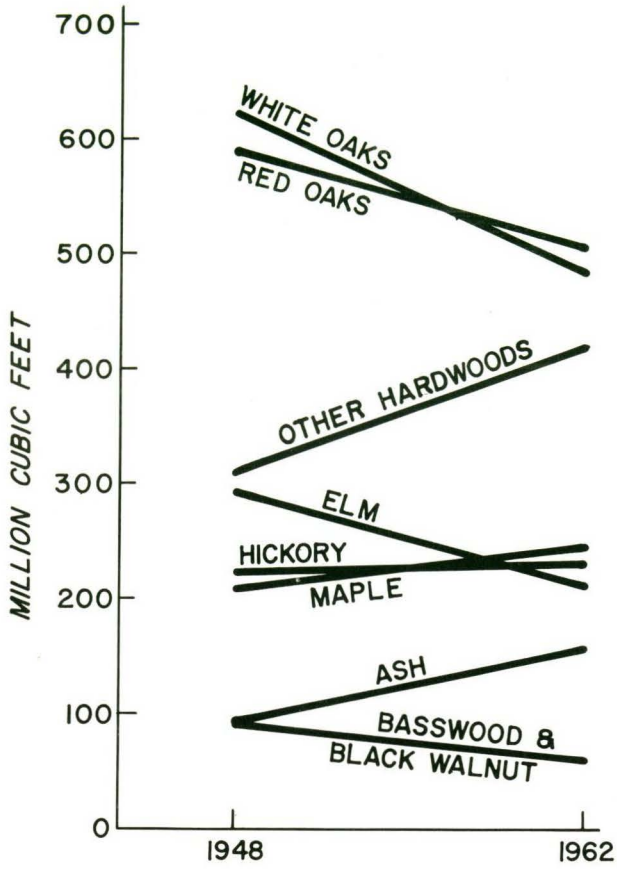

Figure 4.—Change in growing-stock volume by major species groups, 1948-1962.

This group, comprised of yellow-poplar, cottonwood, sycamore, sweetgum, and many other species, has increased in growing-stock volume by about one-third.

In contrast to the relatively stable growing-stock volume is a sharp decline in sawtimber volume. Even though the area of sawtimber stands increased, the volume of sawtimber has dropped 16 percent to the current 8,576 million board feet. In 1948, the average volume per acre of sawtimber trees was 2,600 board feet. By 1962, it had decreased to 2,300 board feet. Most of the loss occurred in the Prairie (northern) Unit where volume dropped one-third.

Survey Unit	Million board feet in— 1948	1962	Change (percent)
Prairie	4,173	2,791	–33
Claypan	3,482	3,350	– 4
Southern	2,603	2,435	– 6
Total	10,258	8,576	–16

A comparison of the number of trees in various size classes at the time of the two surveys clearly indicates why sawtimber volume is down. In 1948 nearly 29 percent of the growing-stock trees 5 inches and larger were of sawtimber size. By 1962, this figure had decreased to 23 percent.

Supply of Large, High-Quality Timber Declining

There are various criteria for measuring the overall quality of the timber resource. Among the most important are log grade, diameter class distribution, proportions of volume in desired species, and the proportion of cull trees to sound trees.

Since 1948 the number of trees 19 inches and larger has decreased nearly 24 percent, and trees 15 through 18 inches 9 percent. As a result, the volume and the proportion of sawtimber in log grades F1 and F2 have also declined (fig. 5). In 1962, only 10 percent of the sawtimber volume was found in the top two grades, a decline from the 24 percent found in 1948:

Log grade	Volume in 1962 (million bd. ft.)	Change from 1948 (percent)
F1	504	–35
F2	407	–75
F3 plus tie and timber	7,665	– 2

This does not necessarily reflect a decline in quality potential. As a general rule, a tree must be 15 inches or larger in diameter before it will produce grade F2 or better logs. So a reduction in the number of large

Figure 5.—Stands of large high-quality timber, such as the one being marked for cutting here, are becoming a rarity. (Photo courtesy of Division of Forestry, Illinois Department of Conservation.)

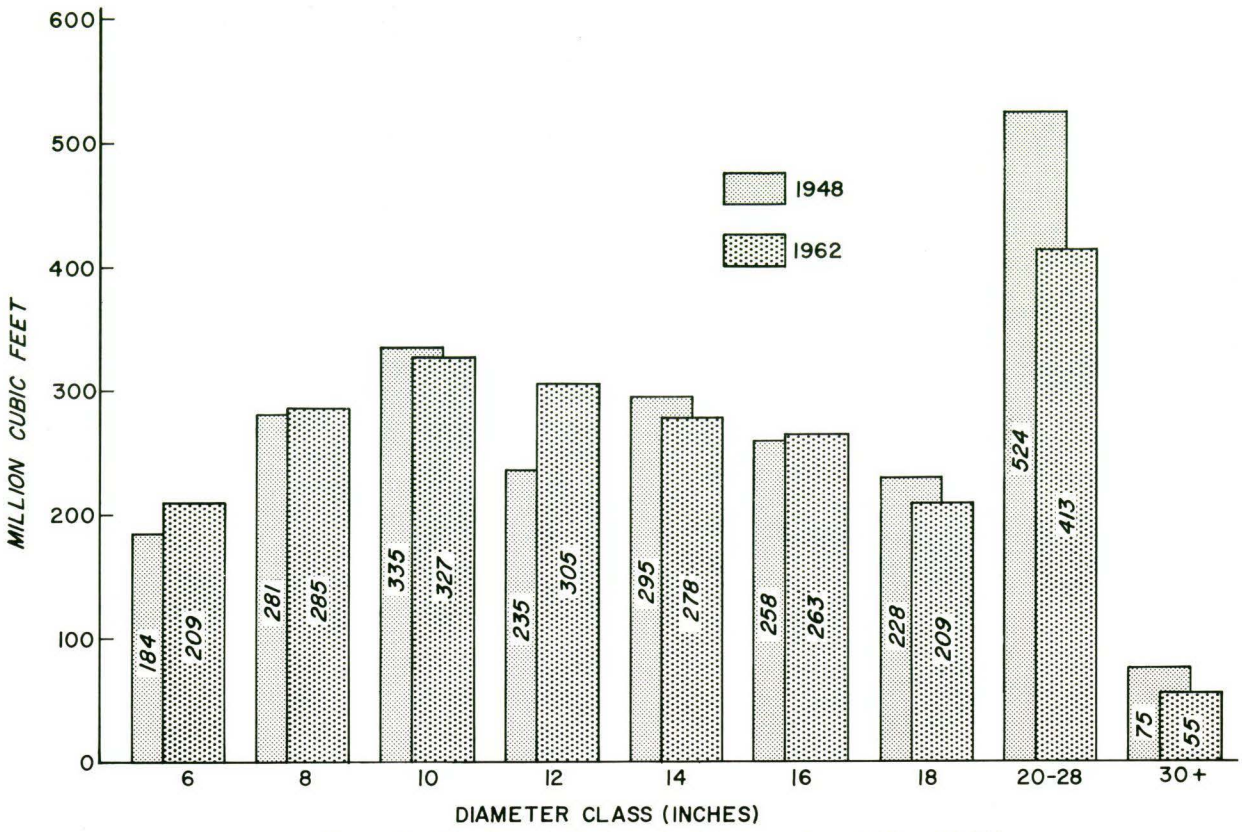

Figure 6.—Growing-stock volume by diameter class, 1948 and 1962.

trees effectively lowers log grades. There has been a substantial increase in the number of sound small trees, but their size prevents them from qualifying for the better log grades.

The decrease in the number of large sawtimber trees will affect most forest industries. The veneer, lumber, and cooperage industries depend primarily on these trees because of their yield of high-quality products and the economy in processing them. In 1962, about 20 percent of the volume was in trees 19 inches and larger (fig. 6). The previous survey found 25 percent in this class. In the period between surveys sawtimber volume dropped 1,682 million board feet, with most of the change in the larger diameter classes. The average annual decrease in the volume of trees 15 inches and larger was 116 million board feet.

Species composition of the larger trees has also been changing. The most drastic change is in the oaks and elms. Together these species accounted for two-thirds of the board-foot volume in 1948. By 1962, their volume had declined 28 percent, with the largest decrease in the white oaks (fig. 7). If the present trend continues the "other hardwoods" group will soon contain as much volume as either the white oaks or red oaks. This could be unfortunate for some forest industries unless other species can be substituted for the oaks. In 1961, almost half of the board-foot volume harvested from Illinois forests came from the white and red oak species.

The quality of Illinois' timber supply can be improved. A substantial proportion of the smaller trees

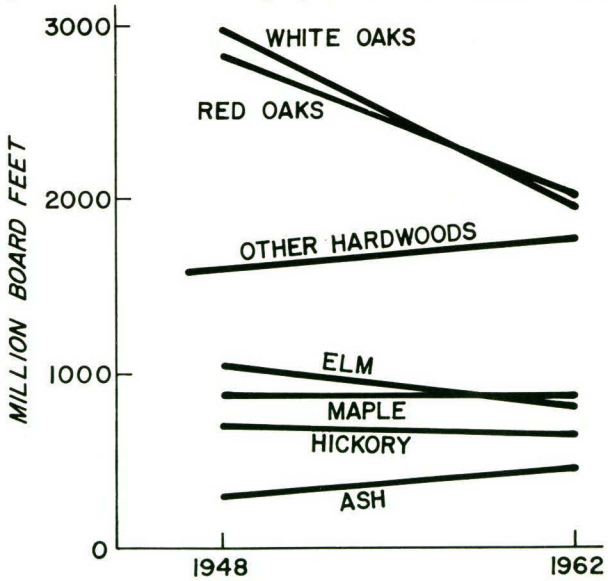

Figure 7.—Change in sawtimber volume by species group, 1948-1962.

in the stands have clean well-formed boles that eventually will produce high-quality material if they are allowed to reach maturity. In the recent survey all growing-stock trees over 2 inches in diameter were given one of several quality classifications. One of the classes, "desirable," indicated that the tree seemed to be capable of producing grade F1 or F2 logs by the time it reached maturity. Of all live trees over 2 inches in diameter, 37 percent were in this class. These desirable trees can be brought to maturity more quickly through cultural operations that will favor their development. At the present time one out of every five live trees over 5 inches in diameter is a cull. Until the large numbers of unwanted trees are reduced, quality growth will be slow.

Growth-Cut Relationship Unfavorable in the Larger Trees

Currently, the net annual growth of all growing stock exceeds the cut, but the excess of growth over cut does not extend across all diameters or across all species. Nearly 80 percent of the present annual growth, but only about 10 percent of the timber cut, occurs in trees less than 11 inches in diameter. So larger trees are sustaining most of the cut while producing only a small part of the total growth. Growth on trees 18 inches and larger is considerably less than cut. During 1962 the volume of growing stock in trees of this size was reduced 21 million cubic feet (fig. 8). The main reason for the poor growth-cut relations in these trees is a low rate of net growth due to heavy mortality (fig. 9). In some stands the volume of dead trees is greater than the volume of live trees. The Dutch elm and oak wilt diseases have taken a high toll. Recent mortality in the oaks and elms alone is greater than the mortality reported for all species in 1948 (fig. 10).

In addition, much of the excess of growth over cut is found in species that industry, as yet, uses very little. For instance, the cut of hickory is only 8 percent of growth while the cut of highly prized select white and red oaks is more than 80 percent of growth.

Although the present surplus of growth in small trees means little for industry now, it could provide the base for future industrial expansion. With proper management, Illinois forests can produce large, high-quality timber.

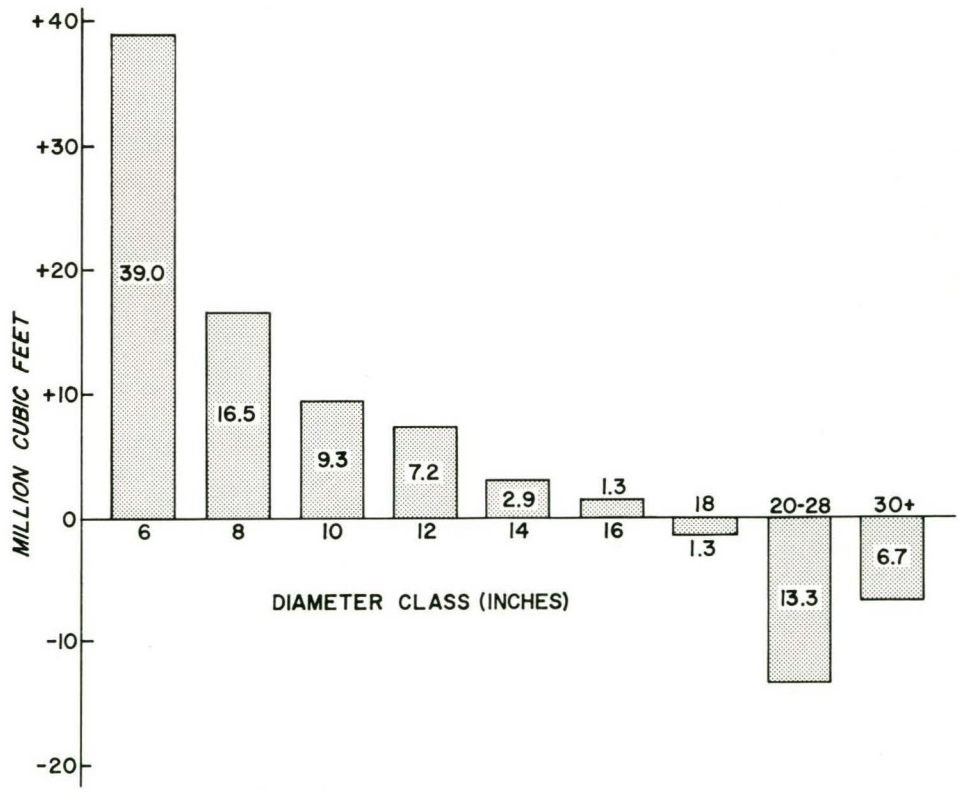

Figure 8.—Current annual change in growing-stock volume by diameter class, 1962 (net annual growth minus timber cut).

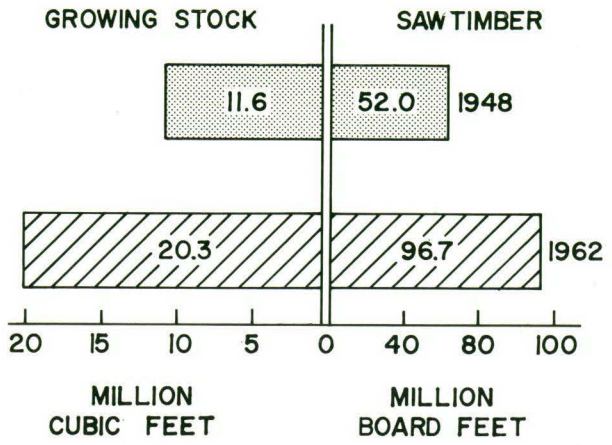

Figure 9.—Mortality of growing stock and sawtimber, 1948 and 1962.

Figure 10.—Disease has replaced fire as the primary cause of mortality in Illinois.

Forest Area Reduced Three Percent

The area of Illinois' forests has changed little in recent years. Today's forests cover 3,871,000 acres of land—3 percent less than in 1948. The northern part of the State is lightly forested, with about 6 percent of the total land area supporting trees. The proportion of land in forests gradually increases from north to south; several of the southernmost counties are more than 30-percent forested. (See generalized forest type map on the inside of back cover.)

The distribution of commercial forest land is very similar to that of total forest land (fig. 11). In 1962, commercial forest land totaled 3,761,000 acres—5 percent less than in 1948. The area of commercial forests increased in the southern part of the State but not enough to offset the losses of 260,000 acres in the north where agriculture is the primary concern of landowners. Although the number of farms in this area has been decreasing since 1940, the acreage of cropland harvested each year has been rising.

Survey Unit	Commercial forest in 1962 (thousand acres)	Change from 1948 (percent)
Prairie	1,307	−16
Claypan	1,368	+ 2
Southern	1,086	+ 5
Total	3,761	− 5

The situation is different in the southern part of the State. There the forests now occupy an additional 77,000 acres. If present trends continue, Illinois' forest industries will depend even more on these down-State forests.

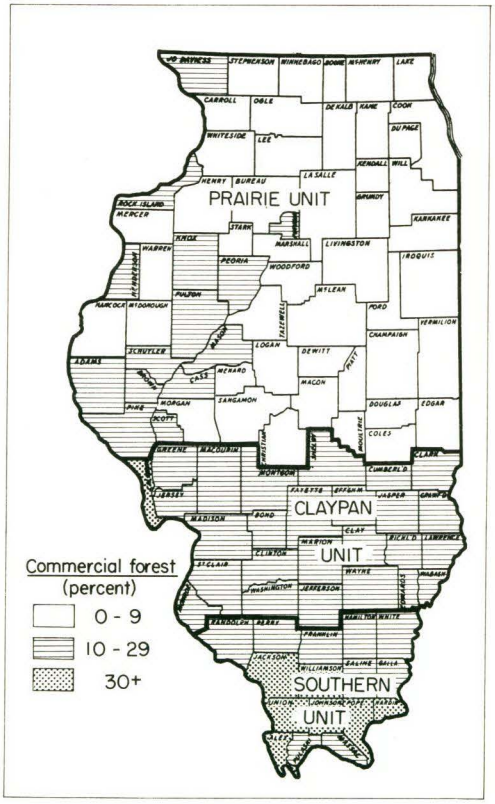

Figure 11.—Percent of land area in commercial forest by county, 1962.

The pattern of commercial forest-land ownership has changed little in recent years. Farm and miscellaneous private owners still own more than nine-tenths of all commercial forest:

Ownership	Percent owned in—	
	1948	1962
Private	95.2	93.2
National Forest	3.7	5.0
Other federal	.8	1.1
State	.3	.3
Forest industry	—	.4

Federal ownership has increased. On the Shawnee National Forest, land acquisition and planting has resulted in an additional 41,000 acres of commercial forest land. Nine thousand acres has been added to other federal ownership. Industry-owned forests, nonexistent in 1948, now total 17,000 acres. State-owned forest land remains nearly the same at 11,000 acres.

The 110,000 acres of forest land that are not producing commercial timber crops represent less than 3 percent of the total forest area of the State. These noncommercial forest lands are either reserved from cutting, as in parks and recreation areas, or they do not produce industrial wood products because of adverse site conditions. They do, however, contribute to the wildlife and recreation resources of the State.

PRESENT TIMBER USES

Although Illinois' timber supply is small in relation to some of the more heavily forested States, the processing of wood is a significant factor in the economy. Figures derived from the latest Bureau of Census estimates show that Illinois ranks fourth in the Nation in value added in timber-based economic activities.[1] These activities include the management of forests, and the proportion of harvesting, primary and secondary manufacturing, transportation, marketing, and construction attributed to timber. In 1958, 157,000 people were employed in these activities, and the value added by them amounted to 1.4 billion dollars. The greatest share of value added was in construction and secondary manufacturing where much of the wood used comes from outside the State. In 1958 the value of timber products harvested in Illinois was estimated at only 12.4 million dollars.[2] In this respect, Illinois ranked 34th in the United States. The low harvest value is, of course, the result of a relatively small timber cut. Down from 38 million cubic feet in 1947, the 1961 cut totaled 30 million cubic feet.

The most significant trend in timber cut is the decrease in the cut of the hard-textured hardwoods. The oaks still account for nearly half of the total harvest, but the cut of these species has dropped 5.2 million cubic feet. On the other hand, the cut of soft-textured hardwoods such as cottonwood and yellow-poplar has increased. Conifers are also being cut more heavily. Illinois has a very small volume of softwoods; yet the cut of these trees went up from 85,000 cubic feet in 1947 to 458,000 in 1961. The softwood cut, predominantly shortleaf pine, amounted to 1½ percent of the total harvest in 1961.

Production figures indicate how the timber cut is being used. The production trends discussed in the next section show to some extent the changing demand for specific products and the types of material that may be needed in the future.

Lumber Production Rising

In 1961, 43 percent of Illinois' total wood production left the woods as saw logs destined for sawmills in Illinois and adjacent States (figs. 12 and 13). Saw log production totaled 131 million board feet—an increase of 31 percent over 1947.

Approximately 1,155 Illinois mills sawed 100 million board feet of lumber in 1947. By 1961, the number of active mills had dropped to 314, but their output increased to 122 million board feet. That year two mills produced more than 3 million board feet of lumber. Another 106 mills reported outputs ranging from 50,000 to 500,000 board feet. Most of the remaining mills produced less than 50,000 board feet. Lumber production has continued to rise steadily in recent years, reaching 138 million board feet in 1963 according to the Bureau of the Census.

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[1] *Hair, Dwight. The economic importance of timber in the United States. U. S. Dept. Agr. Misc. Pub. 941, 91 pp., illus. 1963.*

[2] *Hair, Dwight, and Ulrich, Alice H. The demand and price situation for forest products—1963. U. S. Dept. Agr. Misc. Pub. 953, 50 pp., illus. 1963.*

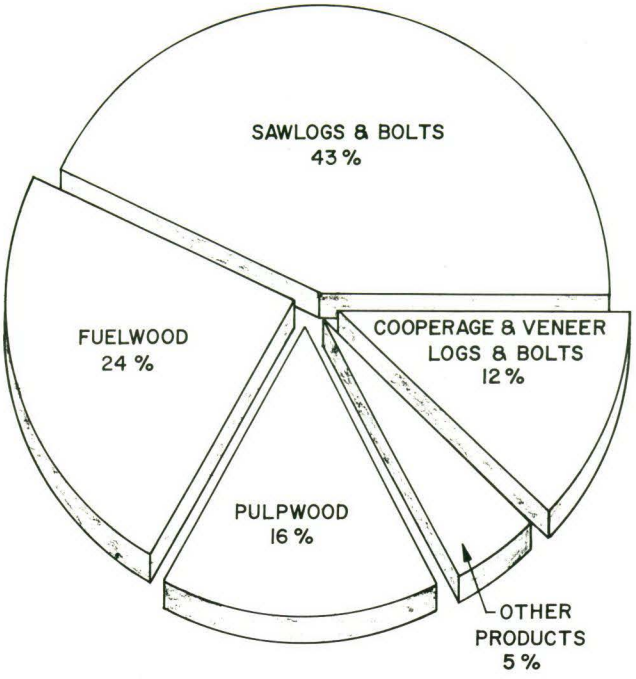

Figure 12.—Percent of total cubic-foot output of timber products by product, 1961.

Pulpwood Production Up

The increasing demand for hardwood pulpwood could provide part of the impetus that forest owners need to improve their stands. Large areas of forest land need thinning and other cultural treatment, but there are few markets for the small and low-grade material removed in timber stand improvement.

Illinois is the second largest producer of pulpwood in the Central States, and the largest producer of soft hardwood pulpwood. Production has been rising rapidly (fig. 14). Since the previous survey in 1947, the harvest of pulpwood from the State has increased 2½ times. Nearly 100,000 cords were cut in 1961. Later statistics show that production continued to rise in 1962, then dropped back in 1963. But the general trend is upward and if this continues, pulpwood will soon rank second to saw logs in volume taken from the forests. Pulpwood made up 16 percent of the total wood production in 1961.

Most of the pulpwood harvested from Illinois is used in the manufacture of felt, board, and corrugating medium. The combined pulping capacity of the State's eight pulpmills is 720 tons a day.[3]

[3] *U. S. Forest Service. Woodpulp mills in the United States, 23 pp., illus. 1961.*

Figure 13.—The principal user of Illinois timber is the lumber industry. (Photo courtesy of Division of Forestry, Illinois Department of Conservation.)

Figure 14.—Pulpwood production has become increasingly important in recent years.

Cooperage Log Production Up But Future Uncertain

The Central States Region is the leading cooperage-log producing area in the United States. In 1962 the Region produced one-third of the national output. In Illinois the cut of cooperage logs is considerably higher now than it was in 1947; yet recent trends make the future somewhat questionable. In 1962 manufacturers of tight cooperage were concerned over proposals that would permit bourbon barrels to be used several times. Present Federal regulations prohibit the re-use of these barrels. Producers of slack cooperage are also hesitant about increasing produc-

tion because their markets are being taken over by newer packaging materials. Illinois cooperage - log production reflected this uncertainty, dropping 9 percent between 1960 and 1962; but the decline was not as great as in some of the other Central States. In the Region, Illinois ranks second only to Missouri in the production of cooperage logs. In 1962 output totaled 25 million board feet—an increase of 44 percent over that of 1947.

In addition to being one of the top producers of cooperage, Illinois has the largest output of container veneer logs in the Central States. Six of the State's eight veneer mills produce containers for fruits, vegetables, and meats. They utilize several soft-textured hardwood species, the primary one being cottonwood. The other two mills manufacture high-quality face veneer, mainly from walnut logs.

The production of veneer logs and bolts in Illinois dropped between 1947 and 1958. Then in 1960 production climbed to 11.8 million board feet—slightly higher than the output in 1947. In 1963 production was 9.2 million board feet—22 percent below that of 1960. This recent sharp decline in part reflects increased competition from fiber containers.

Less Fuelwood Used

Fuel oil, coal, and gas are rapidly replacing wood as a source of fuel in rural homes. Not long ago fuelwood accounted for about half of the total wood production from Illinois' forests. The 1961 fuelwood production of around 150,000 cords is less than half that cut in 1947 and represents only a quarter of the total wood production.

FUTURE TIMBER SUPPLY

During the next 30 years the cut of timber products from Illinois will probably rise to keep pace with the needs of a growing population. But if intensity of forest management continues to advance at the rate indicated by recent trends, increases in productivity will be more than enough to offset expanded cutting rates. The net annual growth projected for 1992 is almost 150 million cubic feet, or 74 percent more than at present. Timber cut is expected to increase 64 percent to almost 50 million cubic feet per year during the same period. The steady increase in growth over cut would double the volume of growing stock by 1992.

Though substantial, the projected increases in productivity are small when compared with the potential of Illinois' forests. Under present management know-how it is estimated that 281 million cubic feet of wood could be grown each year. This is approximately three times the present growth rate. One-third of the commercial forest land has the inherent capacity to produce more than 85 cubic feet of wood per acre per year. This land, in itself, could grow more wood than the total growth reported for all commercial forest land in 1962.

The decreasing supply of sawtimber trees is a critical problem that must be faced in the near future. These large high-value trees make up most of the volume sought by the present forest industries. As noted before, growth has not been equal to cut in the larger diameter classes. A large part of the present sawtimber volume is in sawtimber stands that have been cut over several times and are now well past their prime. Past cutting has generally left the poorer trees. Not only culls but a large number of defective growing-stock trees that will produce only low-grade material have been left. Quality growth in these stands is slow and far from that needed to supply future demands of present industries.

Annual mortality is also high in the older stands. Sawtimber mortality averaged 26 board feet per acre in 1962—double the death rate in 1948. Insects and disease are responsible for nearly two-thirds of the current mortality.

High-grading in the older stands, plus a high mortality rate, has reduced sawtimber growth substantially from what it was in 1948. So even though growth in the younger trees has been rapid, total growth per acre is the same today as it was at the time of the last survey (23 cubic feet per acre).

About 175,000 Acres Should Be Cut Annually

If growing stock that provides little or no increment to the stands were removed, about 386,000 acres of over-mature commercial forests could be cut in the next 10 years. Also, stands on about 53,000 acres are reaching rotation age each year. These stands

have passed their peak productivity and should be cut before mortality and decay reduce the usable volume sufficiently to make harvesting uneconomical. In addition, timber stand improvement work is needed in younger stands to favor the better trees. Although the growth rate in the young stands is adequate, a large part of the growth is going on trees that have few markets. Many trees reaching sawtimber size are either of low quality or are species little used today. Stand improvement measures are needed on approximately 82,000 acres of commercial forest land annually.

The acreage recommended for cutting annually during the next decade is summarized below:

Forest type group	Thousand acres by type of cut		
	Emergency	Harvest	Intermediate
Pine	—	—	1.1
Upland hardwoods	29.3	29.4	50.1
Lowland hardwoods	9.3	23.3	30.8
Total	38.6	52.7	82.0

Recommended Volume Cut is Four Times the Current Harvest

The cut recommendations outlined in the preceding section would result in an annual desirable cut of 112 million cubic feet. This exceeds the current annual timber cut by about 82 million cubic feet. The desirable cut of sawtimber exceeds the actual cut by 275 million board feet annually.

The term "desirable cut" is used to describe the volume of timber that could be cut annually from the forests while bringing the stands to a more productive condition. It assumes that all lands would be handled in like manner regardless of individual owner preference. Although theoretical, desirable cut figures do show the cut that the forests could sustain under management practices such as are used on the National Forests. Presented by species and survey unit, desirable cut estimates are useful in pointing out the areas where more timber could be removed and the species that would provide this cut.

A comparison of actual cut with desirable cut indicates that only a few species are in short supply. Although the cut of "other softwood" growing stock can be expanded, shortleaf pine is overcut now, especially in sawtimber-size trees. Actual cut of shortleaf pine exceeded desirable cut by 2 million board feet in 1961. Cottonwood is another species in great demand, especially for container veneer. Here the deficit was 10 million board feet. Nearly all of the remaining species can sustain additional cutting.

About 42 percent of the surplus of desirable cut over actual cut occurs in the Claypan Unit. The remainder is nearly equally divided between the Prairie and Southern Units.

The immediate result of removing 112 million cubic feet (the desirable cut) each year would be a reduction in the growing-stock volume. For several years growth would be less than cut (fig. 15). The reduction would be less severe each year because of increased growth brought about by improvement cutting on some 82,000 acres annually. At the end of approximately 11 years annual growth would again be equal to cut, and the reduction of growing stock would cease. The 386,000 acres of over-mature timber would have been removed and 527,000 acres would have reached rotation age and have been harvested. Improvement cutting on 820,000 acres would have taken place, with increased growth on the more desirable trees.

As growth continued to exceed cut, the growing-stock volume would climb. By the end of the second 10-year period it would be nearly up to its former level in 1961. From this point on, the cut could be maintained at a slightly lower level than growth until the desired growing-stock volume is reached. Timber quality would be much improved and the harvest consequently more valuable.

The recommended cut for sawtimber would have to be modified in the second 10-year period as shown in figure 16. Sawtimber volume, as with growing stock, would decrease the first period. It would continue to decrease throughout the second period unless the cut is reduced.

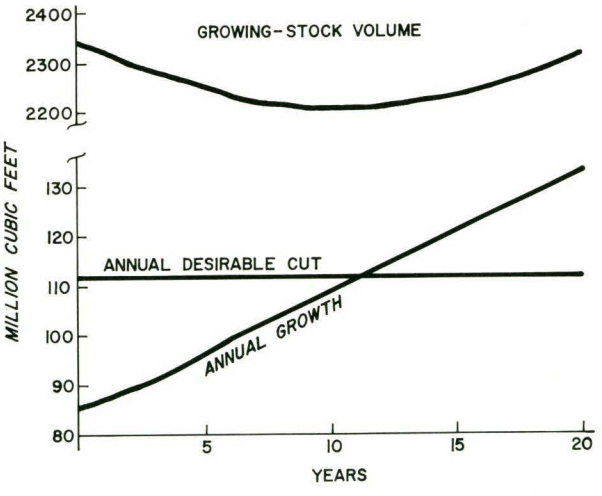

Figure 15.—Projections of growing-stock volume and growth, assuming the desirable cut is made.

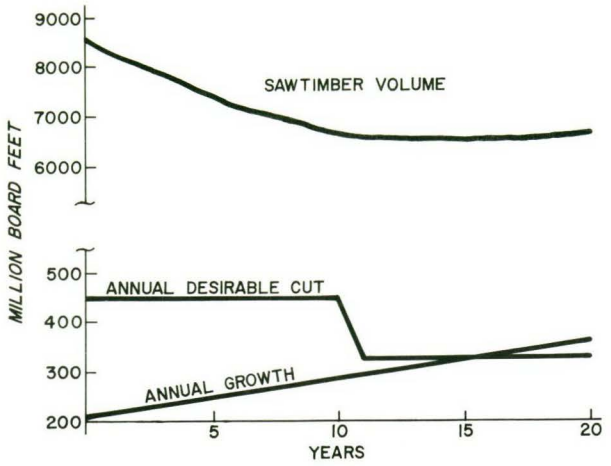

Figure 16.—Projections of sawtimber volume and growth, assuming the desirable cut is made.

More Markets Needed for Small and Low-Grade Timber

Although the forests can yield a much larger harvest than they do, markets for the material that should be cut are hard to find. A good part of the desirable cut ought to come from low-quality trees and from species that are not normally used by the present forest industries. Nearly 30 percent of the sawtimber surplus is in the hickories and miscellaneous hardwoods. In addition, about 28 percent of the desirable cut should come from low-quality pole-timber trees.

If harvesting the desirable cut of 112 million cubic feet is to be a commercial undertaking, new markets will have to be developed or existing processes modified to utilize small and low-grade timber. A stable market for small trees would certainly provide incentive to owners with stands that need thinning. Expanding local pulpmills use a wide variety of species; and some low-grade hardwoods that were unmerchantable a few years ago are now being pulped. However, this is only one industrial outlet, and its needs are not large enough to take all the low-quality trees that should be cut. Further research is needed, both in development of new products and adaptation of the present timber supply to existing products.

Figure 17.—Most of the timber harvest comes from small privately owned woodlands.

Private Owners Determine Management

Actions taken by the many private landowners will largely determine the future wood supply. More than 90 percent of the State's commercial forest land is in tracts owned by farmers, doctors, lawyers, housewives, and many others—people who are not primarily concerned with growing timber. In 1961 their woodlots provided 96 percent of the total timber harvest (fig. 17).

These private lands could sustain a much higher growth rate. Present net annual growth is only 22 cubic feet per acre. This low growth rate is the result of little or no management. Although technical assistance is available from the Forestry Division of the Illinois Conservation Department and others, only a small proportion of owners show an interest in forest management. The result has been a high-grading of the woodlots. The better trees have been cut, leaving a large number of cull and defective trees. Illinois' forests have little chance of realizing their full potential unless the many private landowners are persuaded to put forestry to work.

APPENDIX

Forest Survey Methods

Area, Volume, and Growth

Estimates of area and volume on the Shawnee National Forest were supplied by the North Central Region of the U.S. Forest Service. The Shawnee contains 5.3 percent of the forest land in the State.

The remaining forest land was surveyed by the Lake States Forest Experiment Station. Estimates of forest area were based on classification of 272,968 points systematically spaced on aerial photographs. The points were first classified as either forest or nonforest. One-fourth of the forest points were further classified under the stereoscope to provide a breakdown of forest area into type and stand-size classes. A final ground check of 5,261 points was made to adjust the photo classifications. Adjustment is usually necessary because of changes in land use between the time of photography and the survey.

The ground check points were also used to estimate forest volume and growth. Variable-radius plots with a basal area factor of 37.5 were taken on 549 of the points classified as commercial forest by the fieldmen.

Timber Cut

Production surveys and utilization studies provided the basis for timber cut estimates. All sawmills, veneer mills, pulpmills, and other wood-using industries were canvassed. The total timber cut computed from this canvass was broken down by Survey unit on the basis of stumps of recently cut trees tallied by the inventory field crews. The stump tally was also used to determine the proportion of timber cut by diameter classes.

Desirable Cut

Desirable cut is the volume of timber that would be cut on commercial forest land during a given period under specified management plans for sustained production, such as those in effect on National Forests. It is based on the actions considered necessary to increase growth and build up the growing stock to a desirable quantity and quality. The general computing procedure was as follows:

1. Stands past rotation age were scheduled to be cut within the next 10 years—one-tenth of the total each year.
2. For stands reaching rotation age, harvest-cut acreage was computed by forest type. The area between rotation age and one-half rotation age was divided by one-half the rotation age to determine the area to be cut annually.
3. Estimates of volume for the acres designated for cutting in steps 1 and 2 were then computed by expanding appropriate survey plot volumes.
4. Additional desirable cut volume was estimated for areas that need some form of cultural operation such as thinning or cleaning. A stand must have been able to yield at least 3 cords of usable wood in the improvement operation before it was recommended for treatment.

Accuracy of Forest Survey Estimates

Survey estimates are subject to two types of error. Sampling error occurs because it is impractical to measure every tree in the forest. A small number of trees are carefully measured and their volumes are expanded to represent the total volume. The variation of this sample is measurable and provides the basis for the calculated sampling error. The second type of error cannot be measured. It consists of errors in measurement, arithmetic, recording, etc. This is kept to a minimum by training, supervision, and checking of all phases of the work.

The estimate of 3,871,300 acres of forest land in Illinois has a sampling error of 2.36 percent or 91,360 acres. This means that with repeated surveys the estimate of total forest area would fall within the range of 3,779,940 acres to 3,962,660 acres, two out of three times. The sampling error for total commercial forest land is 2.80 percent, that for total cubic-foot volume

is 3.21 percent, and that for total board-foot volume is 2.97 percent. As these totals are broken down by forest type, species, ownership, and diameter classes, sampling errors increase—the smaller the unit the higher the sampling error. Table I presents sampling errors for different size units of volume and commercial forest area.

The timber cut from growing stock (estimated at 30 million cubic feet) has a sampling error of approximately 13.9 percent, or a plus or minus 4.2 million cubic feet.

Merchantable volume in the upper stem portion of hardwood sawtimber trees was not included in the estimates of growing-stock volume for 1948. The 1962 data does include this material. Original 1948 volumes had to be adjusted before comparisons between the two surveys could be made.

Table I.—*Guide for judging accuracy of area and volume, Illinois, 1962*

Sampling error	Commercial forest land	Sawtimber volume	Growing-stock volume
Percent	*Thousand acres*	*Million bd. ft.*	*Million cu. ft.*
2.8	3,761	—	—
3.0	3,284	8,576	—
3.2	2,886	7,373	2,344
4.0	1,847	4,719	1,512
5.0	1,182	3,020	967
10.0	296	755	242
20.0	74	189	60
40.0	19	47	15
100.0	3	8	2

Definition of Terms

Land-Use Classes

Land area.—The area of dry land and land temporarily or partially covered by water such as marshes, swamps, and flood plains, streams, sloughs less than 1/8 mile wide, and lakes, reservoirs, and ponds less than 40 acres in area.

Forest land.—Land at least 10-percent stocked by forest trees of any size, or formerly having such tree cover, and not currently developed for nonforest use. *Commercial forest land.*—Forest land that is producing or capable of producing crops of industrial wood and not withdrawn from timber utilization by statute or administrative regulation.

Noncommercial forest land.—All other forest land that does not qualify as commercial forest: (1) unproductive—forest land incapable of yielding crops of industrial wood because of adverse site conditions, and (2) productive reserved—forest land capable of producing crops of industrial wood but withdrawn from timber utilization through statute or administrative regulation.

Nonforest land.—Land that has never supported forests and land formerly forested where forest use is now precluded by development for nonforest use.

Forest Types

Forest type classification is based on the stocking of all live dominant and codominant trees. The following types are used in this report:

White-red-jack pine.—Forests in which 50 percent or more of the stocking is eastern white pine, red pine, or jack pine, singly or in combination.

Loblolly-shortleaf pine.—Forests in which 50 percent or more of the stocking is loblolly, shortleaf, or other southern yellow pines, singly or in combination. This type includes only shortleaf pine in Illinois.

Oak-pine.—Forests in which 50 percent or more of the stocking is hardwoods (usually upland oaks) but in which pines comprise 25 to 49 percent of the stocking.

Oak-hickory.—Forests in which 50 percent or more of the stocking is upland oaks or hickories, singly or in combination, except stands that classify as oak-pine.

Oak-gum-cypress.—Bottomland forests in which 50 percent or more of the stocking is tupelo, blackgum, sweetgum, oaks, or cypress, singly or in combination, except stands that classify as oak-pine.

Elm-ash-cottonwood.—Forests in which 50 percent or more of the stocking is elm, ash, or cottonwood, singly or in combination.

Maple-beech-birch.—Forests in which 50 percent or more of the stocking is maple, beech, or yellow birch, singly or in combination.

Aspen-birch.—Forests in which 50 percent or more of the stocking is aspen or paper birch, singly or in combination.

Stocking

Stocking describes how well the available growing space is being utilized by trees. Ten points on each ground plot were used to determine stocking. If two dominant or codominant growing-stock trees formed a closed canopy over a point, the point was considered stocked. Twenty trees tallied in this way would indicate 100-percent stocking, 10 trees 50-percent, etc.

Stand-Size

Stand-size is a classification of forest land based on the predominant size of timber present: sawtimber, poletimber, or saplings and seedlings.

Sawtimber stands.—Stands at least 10-percent stocked with growing-stock trees, with half or more of this stocking in sawtimber or poletimber trees and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.—Stands at least 10-percent stocked with growing-stock trees and with half or more of this stocking in sawtimber and/or poletimber trees and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.—Stands at least 10-percent stocked with growing-stock trees and with saplings and/or seedlings comprising more than half of the stocking.

Nonstocked areas.—Commercial forest land less than 10-percent stocked with growing-stock trees.

Stand Age

Age of the main stand for both even and uneven-aged stands expressed in years.

Site Class

Site class is an indication of what the stands can produce when fully stocked with desirable trees. It is based on the potential yields in cubic feet per acre of mean annual growth at culmination of increment. In this survey, site index (height of dominant and codominant trees at 50 years of age) was used to estimate site class. Stands with site index of 70 or more were assumed to have a productivity of 85 cubic feet or more per acre per year; site index of 50 to 70 a productivity of 50 to 85 cubic feet; and site index of 35 to 50 a productivity of less than 50 cubic feet. Stands with site index less than 35 were considered unproductive.

Area Condition Class

Area condition is the classification of commercial forest land based upon stocking of desirable trees and other conditions affecting current and prospective timber growth.

Desirable.—Areas 70-percent or more stocked with desirable trees.

Moderate and favorable.—Areas 40- to 70-percent stocked with desirable trees and with less than 30 percent of the area having undesirable growing-stock trees, cull trees, inhibiting vegetation, slash, or non-stockable conditions that prevent occupancy by desirable trees.

Moderate and unfavorable.—Areas 40- to 70-percent stocked with desirable trees and with 30 percent or more of the area having other trees or conditions that prevent occupancy by desirable trees.

Poor but favorable. — Areas less than 40-percent stocked with desirable trees, but having an adequate seed source and seedbed favorable to natural regeneration.

Poor and unfavorable.—Areas less than 40-percent stocked with desirable trees, and having an inadequate seed source or seedbed unfavorable to natural regeneration.

Tree-Quality Classes

Growing-stock trees.—All live sawtimber, poletimber, sapling and seedling trees. Cull trees are not considered growing stock.

Desirable trees.—Growing-stock trees that have no serious defects in quality limiting present or prospective use; are of relatively high vigor; and contain no pathogens that may result in death or serious deterioration before rotation age. These are the trees that would be favored in silvicultural operations.

Acceptable trees.—Growing-stock trees that do not qualify as desirable trees.

Cull trees.—Live trees that do not contain at least one 8-foot saw log now or prospectively because of limbiness, crook, or rot. Trees with no commercial use are also classified as cull.

Salvable dead trees.—Standing or down dead trees that are considered currently or potentially merchantable.

Tree-Size Classes

Sawtimber trees.—Live trees of commercial species at least 9 inches in diameter for softwoods and 11 inches in diameter for hardwoods, and containing at least one 8-foot saw log meeting the minimum log grade or tie and timber specification.

Poletimber trees.—Live trees of commercial species at least 5 inches in diameter but smaller than sawtimber size, and of good form and vigor.

Saplings and seedlings.—Live trees of commercial species less than 5 inches in diameter and of good form and vigor.

Diameter

D.b.h. (diameter at breast height).—Tree diameter in inches measured outside the bark at a point 4½ feet above the ground.

Diameter class.—Trees are measured to the nearest 0.1 inch in the field and reported by 2-inch classes. The 6-inch class, for example, includes trees from 5.0 inches through 6.9 inches.

Volume

Growing-stock volume. — Cubic volume of sound wood in the central stem of live sawtimber and poletimber trees from stump to a minimum 4-inch top diameter outside bark or to the point where the central stem breaks into limbs.

Sawtimber volume.—Net volume of the saw-log portion of live sawtimber trees in board feet, International ¼-inch rule. The saw-log portion extends from stump to a minimum top diameter outside bark of 6 inches for softwoods and 8 inches for hardwoods or to the point where defects reduce saw-log quality below Standard Log Grade 3 or Tie and Timber Grade.

All timber volume.—Cubic-foot volume of sound wood in the bole of growing stock, cull, and salvable dead trees 5 inches or larger in diameter, from stump to a minimum 4-inch top diameter outside bark or to the point where the central stem breaks into limbs.

Growth

Net annual growth of growing stock.—The annual change in volume of sound wood in live sawtimber and poletimber trees and the total volume of trees entering these classes through ingrowth, less volume losses resulting from natural causes on commercial forest land.

Growing-stock growth.—Net annual growth of poletimber and sawtimber trees in cubic feet.

Sawtimber growth.—Net annual growth of sawtimber trees in board feet, International ¼-inch rule.

Mortality

Mortality of growing stock.—Cubic-foot volume of sound wood in live sawtimber and poletimber trees dying annually from natural causes.

Mortality of sawtimber.—Net board-foot volume of sawtimber trees dying annually from natural causes.

Timber Cut

Annual cut of growing stock.—Cubic-foot volume of sound wood in live sawtimber and poletimber trees cut for forest products during a specified year, including both roundwood products and logging residues.

Annual cut of sawtimber.—Net board-foot volume of live sawtimber trees cut for forest products during a specified year, including both roundwood products and logging residues.

Timber products output.—Net volume of rough forest products cut from growing stock, cull trees, dead trees, limbwood, and plant by-products.

Logging residues.—Net volume of live sawtimber and poletimber trees cut or killed by logging on commercial forest land and not converted to timber products.

Desirable Cut

Annual desirable cut.—The net volume of live sawtimber and poletimber trees that can be cut annually during the next 10 years in commercial-logging operations while maintaining or increasing growing stock and while effecting a reasonably even distribution of age classes below the rotation age selected for each type. It includes harvest and improvement cuts yielding 3 cords or more per acre, and one-tenth of the entire net volume of stands beyond the rotation age.

Log Grade

Log grades used in Illinois are shown in tables II, III, and IV.

Table II.--Specifications for hardwood factory lumber logs

Grading factors	Log grade F1		Log grade F2	Log grade F3
	Butts only	Butts and uppers	Butts and uppers	Butts and uppers
Diameter (min.)	13-15"	16-19":20"+	11"	8"+
Length (min.)	10'+	10'+	8-11':12'+	8'+
Clear cuttings (on the 3 best faces):				
Length (min.)	7'	5' : 3'	3'	2'
Number on face (max.)	2	2	2 : 3	Unlimited
Yield in face length (min.)	5/6	5/6	4/6	3/6
Sweep and crook deduction (max.)	15%	15%	30%	50%
Cull deduction, including sweep (max.)	40%	40%	50%	50%
Sound end defects, area (max.)	See instructions			

Exceptions.--In ash and basswood 12" d.i.b. for grade 1 butts.

Grade 2 10" d.i.b. must be grade 1 surface quality.

Grade 2 11" d.i.b. limited to two cuttings.

Grade 2 8' and 9' lengths limited to 12" d.i.b.; 3/4 yield in not more than 2 3'+ cuttings.

Sweep and crook allowance reduced 1/3 in logs with more than 1/4 diameter in sound end defects.

Sixty percent cull deduction permitted in grade 2, if otherwise of grade 1 quality.

Sixty percent cull deduction permitted in grade 3, if otherwise of grade 2 quality.

Source: Hardwood Log Grades for Standard Lumber, Forest Products Laboratory, 1953.

Table III.--Specifications for tie and timber logs

Position in tree	Butt and upper
D.i.b., small end, inches	8"+
Length without trim, feet	8'+
Clear cuttings	No requirements. Not graded on cutting basis.
Sweep allowance, maximum	1/4 d.i.b. of small end for half logs and 1/2 d.i.b. for log 16' long.
Sound surface defects permitted:	
Single knots	Any number, if none has an average collar diameter in excess of 1/3 of log diameter at point of occurrence.[1/]
Whorled knots	Any number, provided the sum of the collar diameters does not exceed 1/3 the log diameter at point of occurrence.
Holes	Any number not exceeding knot specifications if they do not extend over 3 inches into the contained tie or timber.
Unsound defects permitted:	
Surface	Any number and size if they do not extend into contained tie or timber, If they extend into contained tie and timber they shall not exceed size, number, and depth of limits of sound knots.
Interior	None permitted except one shake not more than 1/3 the width of contained tie or timber and one split not over 5 inches long.

1/ Knot collar is the average of the vertical and horizontal diameters of the limb or knot swelling as measured flush with the surface of the log.

Note: Local use logs that do not meet the minimum specifications of the above grades will not be considered merchantable for survey purposes.

Source: Forest Survey Instructions, Section 4810, Forest Service Handbook.

Table IV.--Specifications for southern pine logs

Grade	D.I.B.	Length	Surface requirements
1	10" - 16"	8' plus	Surface clear (not considering adventitious knots and branches).
	16" plus	8' plus	Not more than three 2- to 4-inch knots and any number of smaller knots
2	8" - 9"	8' plus	Surface clear
	10" - 13"	8' plus	Any number of small knots (less than 2 inches in diameter).
	14" plus	8' plus	Not more than six 2- to 4-inch knots and any number of smaller knots
3	6" - 7"	8' plus	Any number of small knots not exceeding 1 inch in diameter.
	8" - 13"	8' plus	With not more than six 2- to 4-inch knots.
	14" plus	8' plus	More than six 2- to 4-inch knots. Any log with one or more knots 5 inches and larger.

Knotty or crooked merchantable logs 8-inch d.i.b. or over that do not fall in either No. 1 or No. 2 grade: length 10 feet or over.

Source: adapted from log grades defined in USDA Tech. Bul. 861. "Financial aspects of selective cutting in the management of second-growth pine-hardwood forests west of the Mississippi River" by R. R. Reynolds, W. E. Bond, and Burt P. Kirkland, June 1944. 118 pp. illus.

Principal Commercial Tree Species[1] of Illinois

SOFTWOOD SPECIES

Shortleaf and loblolly pine group includes—
- Shortleaf pine (no loblolly pine found in Illinois) *Pinus echinata* Mill.

Cypress *Taxodium distichum* (L.) Rich.

Redcedar *Juniperus virginiana* L.

Other softwoods
- White pine *Pinus strobus* L.
- Any softwood not shown above

HARDWOOD SPECIES

Select white oak group includes—
- Bur oak *Quercus macrocarpa* Michx.
- Chinkapin oak *Q. muehlenbergii* Engelm.
- Swamp chestnut oak *Q. michauxii* Nutt.
- Swamp white oak *Q. bicolor* Willd.
- White oak *Q. alba* L.

Select red oak group includes—
- Cherrybark oak *Q. falcata* var. *pagodaefolia* Ell.
- Northern red oak *Q. rubra* L.
- Shumark oak *Q. shumardii* Buckl.

Other white oak group includes—
- Overcup oak *Q. lyrata* Walt.
- Post oak *Q. stellata* var. *stellata* Wangenh.

Other red oak group includes—
- Black oak *Q. velutina* Lam.
- Blackjack oak *Q. marilandica* Muenchh.
- Pin oak *Q. palustris* Muenchh.
- Scarlet oak *Q. coccinea* Muenchh.
- Shingle oak *Q. imbricaria* Michx.
- Southern red oak *Q. falcata* Michx.
- Water oak *Q. nigra* L.
- Willow oak *Q. phellos* L.

Select hickory group includes—
- Mockernut hickory *Carya tomentosa* Nutt.
- Shagbark hickory *C. ovata* (Mill.) K. Koch
- Shellbark hickory *C. laciniosa* (Michx. f.) Loud.

Other hickory group includes any hickory not shown above

Hard maple group includes—
- Black maple *Acer nigrum* Michx. f.
- Sugar maple *A. saccharum* Marsh.

Beech (American) *Fagus grandifolia* Ehrh.

Black walnut *Juglans nigra* L.

Ash *Fraxinus sp.*

Elm *Ulmus sp.*

Soft maple group includes—
- Boxelder *Acer negundo* L.
- Red maple *A. rubrum* var. *rubrum* L.
- Silver maple *A. saccharinum* L.

Sweetgum *Liquidambar styraciflua* L.

Tupelo and black gum group includes—
- Black tupelo *Nyssa sylvatica* Marsh.
- Water tupelo *N. aquatica* L.

Cottonwood *Populus deltoides* Bartr.

Aspen (quaking) *P. tremuloides* Michx.

Sycamore (American) *Platanus occidentalis* L.

Yellow-poplar *Liriodendron tulipifera* L.

Basswood (American) *Tilia americana* L.

Other soft hardwoods group includes—
- Birch, river *Betula nigra* L.
- Buckeye *Aesculus* sp.
- Butternut *Juglans cinerea* L.
- Catalpa, northern *Catalpa speciosa* Warder
- Cherry, black *Prunus serotina* Ehrh.
- Hackberry *Celtis occidentalis* L.
- Kentucky coffeetree *Gymnocladus dioicus* (L) K. Koch
- Magnolia (cucumbertree) *Magnolia acuminata* L.
- Sugarberry *Celtis laevigata* Willd.
- Willow *Salix* sp.

Other hard hardwoods group includes—
- Dogwood, flowering *Cornus florida* L.
- Honeylocust *Gleditsia triacanthos* L.
- Locust, black *Robinia pseudoacacia* L.
- Osage-orange *Maclura pomifera* (Raf.) Schneid.
- Persimmon, common *Diospyros virginiana* L.

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[1] The common and scientific names are based on "Check List of Native and Naturalized Trees of the United States (including Alaska)" by Elbert L. Little, Jr., U.S. Dept. Agr., Agr. Handb. 41, 472 pp. 1953.

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44. Annual desirable cut of growing stock on commercial forest land, by species and survey units.

45. Annual desirable cut of live sawtimber on commercial forest land, by species and survey units.

Comparison of Growth, Cut, and Desirable Cut

46. Net annual growth, annual cut, and desirable cut of growing stock on commercial forest land, by species classes and by ownership classes.

47. Net annual growth, annual cut, and desirable cut of sawtimber on commercial forest land, by species classes and by ownership classes.

48. Surplus and shortage in growing stock and sawtimber, by species and survey units.

Growth Projections

49. Timber growth projections, 1962 and 1992.

Table 1.--Land area by classes and Forest Survey units, Illinois, 1962

(In acres)

Land class	All units	Prairie	Claypan	Southern
Forest land:				
Commercial forest	3,761,400	1,307,200	1,368,200	1,086,000
Unproductive forest	65,000	13,100	19,900	32,000
Productive-reserved forest	44,900	29,600	4,700	10,600
Total forest land	3,871,300	1,349,900	1,392,800	1,128,600
Nonforest land:				
Cropland	23,863,600	-	-	-
Pasture and range	3,321,100	-	-	-
Other	4,739,200	-	-	-
Total nonforest land[1/]	31,923,900	22,026,700	7,092,300	2,804,900
All land[2/]	35,795,200	23,376,600	8,485,100	3,933,500

1/ Includes 170,600 acres of water according to Survey standards of area classification but defined by Bureau of the Census as land.

2/ From U.S. Bureau of the Census, Land and Water Area of the United States, 1960.

Table 2.--Area of commercial forest land, by ownership classes and Forest Survey units, Illinois, 1962

(In acres)

Ownership class	All units	Prairie	Claypan	Southern
National Forest[1/]	187,800	-	-	187,800
Other Federal	41,500	17,500	4,000	20,000
State	11,100	6,000	1,100	4,000
Forest industry (lumber)	16,700	5,300	600	10,800
Farmer-owned	2,216,000	938,900	793,800	483,300
Miscellaneous private	1,288,300	339,500	568,700	380,100
All ownerships	3,761,400	1,307,200	1,368,200	1,086,000

1/ All commercial forest acreage is operable.

Table 3.--Area of commercial forest land, by stand-size and ownership classes, Illinois, 1962

(In acres)

Stand-size class	All ownerships	National Forest	Other public	Forest industry	Farmer and miscellaneous private
PRAIRIE UNIT					
Sawtimber	817,500	-	7,800	5,300	804,400
Poletimber	313,100	-	11,800	-	301,300
Sapling and seedling	166,800	-	-	-	166,800
Nonstocked	9,800	-	3,900	-	5,900
All classes	1,307,200	-	23,500	5,300	1,278,400
CLAYPAN UNIT					
Sawtimber	749,800	-	5,100	600	744,100
Poletimber	360,300	-	-	-	360,300
Sapling and seedling	249,300	-	-	-	249,300
Nonstocked	8,800	-	-	-	8,800
All classes	1,368,200	-	5,100	600	1,362,500
SOUTHERN UNIT					
Sawtimber	581,100	100,600	14,000	10,800	455,700
Poletimber	283,500	46,100	-	-	237,400
Sapling and seedling	196,800	23,700	10,000	-	163,100
Nonstocked	24,600	17,400	-	-	7,200
All classes	1,086,000	187,800	24,000	10,800	863,400
ALL UNITS					
Sawtimber	2,148,400	100,600	26,900	16,700	2,004,200
Poletimber	956,900	46,100	11,800	-	899,000
Sapling and seedling	612,900	23,700	10,000	-	579,200
Nonstocked	43,200	17,400	3,900	-	21,900
All classes	3,761,400	187,800	52,600	16,700	3,504,300

Table 4.--Area of commercial forest land, by forest types and Forest Survey units, Illinois, 1962

(In acres)

Forest type	All units	Prairie	Claypan	Southern
White-red-jack pine	500	500	-	-
Loblolly-shortleaf pine	34,800	-	700	34,100
Oak-pine	12,100	-	2,400	9,700
Oak-hickory	2,231,700	764,600	790,500	676,600
Oak-gum-cypress	16,800	-	10,500	6,300
Elm-ash-cottonwood	1,442,100	525,300	559,700	357,100
Maple-beech-birch	14,300	7,700	4,400	2,200
Aspen-birch	9,100	9,100	-	-
All types	3,761,400	1,307,200	1,368,200	1,086,000

Table 5.--Area of commercial forest land, by sawtimber volume and stand-size classes, Illinois, 1962

(In acres)

Volume per acre (board feet) 1/	All stands	Sawtimber stands	Other stands
Less than 1,500	1,849,900	445,300	1,404,600
1,500 to 5,000	1,452,600	1,244,200	208,400
More than 5,000	458,900	458,900	-
Total	3,761,400	2,148,400	1,613,000

1/ Net volume, International 1/4-inch rule.

Table 6.--Area of commercial forest land, by stocking classes based on alternative stand components, Illinois, 1962

(In acres)

Stocking class (percent)	Stocking classified in terms of--		
	All trees	Growing stock trees	Desirable trees
90-100	2,099,900	664,900	20,300
80-90	736,500	715,500	56,900
70-80	383,000	550,600	80,700
60-70	210,100	497,400	192,200
50-60	143,900	474,100	425,100
40-50	75,600	286,800	534,500
30-40	62,600	244,800	691,800
20-30	28,500	136,900	609,100
10-20	21,300	147,200	594,100
Less than 10	-	43,200	556,700
Total	3,761,400	3,761,400	3,761,400

Table 7.--Area of commercial forest land, by stocking classes of growing stock trees and by stand-size classes, Illinois, 1962

(In acres)

Stocking class (percent)	All stands	Sawtimber stands	Poletimber stands	Sapling and seedling stands	Nonstocked stands
70 or more	1,931,000	1,299,500	446,700	184,800	-
40-70	1,258,300	657,200	377,300	223,800	-
10-40	528,900	191,700	132,900	204,300	-
Less than 10	43,200	-	-	-	43,200
All classes	3,761,400	2,148,400	956,900	612,900	43,200

Table 8.--Area of commercial forest land, by area-condition and ownership classes, Illinois, 1962

(In acres)

Area condition class	All ownerships	National Forest	Other public	Forest industry	Farmer and miscellaneous private
Desirable	157,900	20,200	2,100	-	135,600
Moderate and favorable	97,800	58,100	-	-	39,700
Moderate and unfavorable	1,054,000	24,400	8,000	-	1,021,600
Poor but favorable	1,036,700	27,800	21,800	16,700	970,400
Poor and unfavorable	1,415,000	57,300	20,700	-	1,337,000
All classes	3,761,400	187,800	52,600	16,700	3,504,300

Table 9.--Area of commercial forest land, by sites and ownership classes, Illinois, 1962

(In acres)

Site class (growth per acre per year in cubic feet)	All ownerships	National Forest	Other public	Forest industry	Farmer and miscellaneous private
120 or more	414,000	-	-	-	414,000
85-120	940,000	66,000	13,200	-	860,800
50-85	1,762,000	117,300	26,300	16,700	1,601,700
Less than 50	645,400	4,500	13,100	-	627,800
All classes	3,761,400	187,800	52,600	16,700	3,504,300

Table 10.--Area of commercial forest land, by forest types and ownership classes, Illinois, 1962

(In acres)

Forest type	All ownerships	Public ownerships	Private ownerships
White-red-jack pine	500	500	-
Loblolly-shortleaf pine	34,800	31,000	3,800
Oak-pine	12,100	7,100	5,000
Oak-hickory	2,231,700	157,300	2,074,400
Oak-gum-cypress	16,800	-	16,800
Elm-ash-cottonwood	1,442,100	44,500	1,397,600
Maple-beech-birch	14,300	-	14,300
Aspen-birch	9,100	-	9,100
All types	3,761,400	240,400	3,521,000

Table 11.--Area of commercial forest land, by forest types and site classes, Illinois, 1962

(In acres)

Forest type	All sites	Site class (growth per acres per year in cubic feet)			
		120 or more	85 to 120	50 to 85	Less than 50
White-red-jack pine	500	-	-	500	-
Loblolly-shortleaf pine	34,800	-	-	17,400	17,400
Oak-pine	12,100	-	-	-	12,100
Oak-hickory	2,231,700	33,700	434,600	1,195,800	567,600
Oak-gum-cypress	16,800	-	-	16,800	-
Elm-ash-cottonwood	1,442,100	380,300	505,400	517,200	39,200
Maple-beech-birch	14,300	-	-	14,300	-
Aspen-birch	9,100	-	-	-	9,100
All types	3,761,400	414,000	940,000	1,762,000	645,400

Table 12.--Area of commercial forest land, by forest types and stand-age classes, Illinois, 1962

(In acres)

Forest type	All ages	Age class (years)									
		Less than 9	10-19	20-29	30-39	40-49	50-59	60-79	80-99	100-119	120 or more
White-red-jack pine	500	-	-	500	-	-	-	-	-	-	-
Loblolly-shortleaf pine	34,800	18,800	12,200	3,800	-	-	-	-	-	-	-
Oak-pine	12,100	400	400	-	-	11,300	-	-	-	-	-
Oak-hickory	2,231,700	89,000	142,400	312,400	278,200	363,000	283,500	361,100	256,600	145,300	200
Oak-gum-cypress	16,800	-	-	-	-	-	-	5,600	-	5,600	5,600
Elm-ash-cottonwood	1,442,100	75,200	148,300	248,600	290,800	221,600	196,200	179,000	75,500	6,900	-
Maple-beech-birch	14,300	-	-	-	-	7,700	6,600	-	-	-	-
Aspen-birch	9,100	-	-	-	9,100	-	-	-	-	-	-
All types	3,761,400	183,400	303,300	565,300	578,100	603,600	486,300	545,700	332,100	157,800	5,800

Table 13.--Area of noncommercial forest land, by forest types, Illinois, 1962

(In acres)

Forest type	All areas	Productive-reserved areas	Unproductive areas
Loblolly-shortleaf pine	3,000	2,000	1,000
Oak-pine	300	-	300
Oak-hickory	70,900	31,800	39,100
Oak-gum-cypress	400	-	400
Elm-ash-cottonwood	34,900	11,100	23,800
Maple-beech-birch	300	-	300
Aspen-birch	100	-	100
All types	109,900	44,900	65,000

Table 14.--Area of commercial forest land, by forest types and area-condition classes, Illinois, 1962

(In acres)

Forest type	All area conditions	Desirable	Moderate and favorable	Moderate and unfavorable	Poor but favorable	Poor and unfavorable
White-red-jack pine	500	-	-	500	-	-
Loblolly-shortleaf pine	34,800	15,600	4,200	8,500	2,300	4,200
Oak-pine	12,100	-	-	-	-	12,100
Oak-hickory	2,231,700	114,100	76,400	714,300	568,700	758,200
Oak-gum-cypress	16,800	-	-	-	16,800	-
Elm-ash-cottonwood	1,442,100	28,200	17,200	313,900	442,300	640,500
Maple-beech-birch	14,300	-	-	7,700	6,600	-
Aspen-birch	9,100	-	-	9,100	-	-
All types	3,761,400	157,900	97,800	1,054,000	1,036,700	1,415,000

Table 15.--Area of land and forest land, by counties, Illinois, 1962

PRAIRIE UNIT

County	All land 1/	Forest land			Commercial forest as a percent of land area
		All forest	Non-commercial	Commercial	
	Thousand acres	Thousand acres	Thousand acres	Thousand acres	Percent
Adams	554.2	68.9	2.0	66.9	12.1
Boone	181.1	3.1	-	3.1	1.7
Brown	196.5	38.2	.7	37.5	19.1
Bureau	555.5	25.6	.1	25.5	4.6
Carroll	299.5	21.0	1.2	19.8	6.6
Cass	236.8	32.0	-	32.0	13.5
Champaign	640.0	5.1	-	5.1	.8
Christian	453.8	14.5	-	14.5	3.2
Coles	324.5	21.2	.7	20.5	6.3
Cook	610.6	28.4	28.4	-	-
DeKalb	407.0	5.7	-	5.7	1.4
DeWitt	255.4	9.2	-	9.2	3.6
Douglas	268.8	4.7	-	4.7	1.7
DuPage	211.8	10.5	-	10.5	5.0
Edgar	401.9	18.8	-	18.8	4.7
Ford	312.3	1.2	-	1.2	.4
Fulton	559.4	88.6	.1	88.5	15.8
Grundy	276.5	11.2	-	11.2	4.0
Hancock	510.1	49.4	.1	49.3	9.7
Henderson	243.8	28.6	.1	28.5	11.7
Henry	528.6	15.7	.3	15.4	2.9
Iroquois	718.1	13.6	-	13.6	1.9
Jo Daviess	393.0	59.7	.2	59.5	15.1
Kane	330.3	8.9	-	8.9	2.7
Kankakee	435.2	13.1	1.0	12.1	2.8
Kendall	204.8	4.5	-	4.5	2.2
Knox	465.9	46.5	.1	46.4	10.0
Lake	292.5	13.9	1.4	12.5	4.3
LaSalle	737.9	31.7	1.8	29.9	4.1
Lee	466.6	10.0	-	10.0	2.1
Livingston	667.5	5.3	-	5.3	.8
Logan	398.1	9.4	-	9.4	2.4
McDonough	372.5	26.2	.8	25.4	6.8
McHenry	391.0	13.9	-	13.9	3.6
McLean	750.7	8.7	-	8.7	1.2
Macon	368.6	10.7	.4	10.3	2.8
Marshall	252.8	23.4	-	23.4	9.3
Mason	346.2	35.0	.1	34.9	10.1
Menard	199.7	14.4	.2	14.2	7.1
Mercer	355.8	24.3	-	24.3	6.8
Morgan	361.6	26.1	-	26.1	7.2
Moultrie	220.8	10.1	-	10.1	4.6
Ogle	484.5	23.0	.5	22.5	4.6
Peoria	399.4	39.2	.1	39.1	9.8
Piatt	279.7	4.9	-	4.9	1.8
Pike	530.6	72.8	.1	72.7	13.7
Putnam	106.2	12.8	-	12.8	12.1
Rock Island	268.8	29.5	.2	29.3	10.9
Sangamon	563.2	23.2	-	23.2	4.1
Schuyler	277.8	58.6	.1	58.5	21.1

(Cont'd on next page)

Table 15 (Cont'd)

PRAIRIE UNIT (Cont'd)

County	All land 1/	Forest land			Commercial forest as a percent of land area
		All forest	Non-commercial	Commercial	
	Thousand acres	Thousand acres	Thousand acres	Thousand acres	Percent
Scott	160.6	19.1	-	19.1	11.9
Stark	186.2	5.0	-	5.0	2.7
Stephenson	363.5	11.6	.4	11.2	3.1
Tazewell	417.9	23.4	.5	22.9	5.5
Vermilion	574.7	25.5	1.1	24.4	4.2
Warren	346.9	19.6	-	19.6	5.7
Whiteside	441.6	14.3	-	14.3	3.2
Will	540.8	20.3	-	20.3	3.8
Winnebago	332.8	15.5	-	15.5	4.7
Woodford	343.7	20.6	-	20.6	6.0
Total	23,376.6	1,349.9	42.7	1,307.2	5.6
		CLAYPAN UNIT			
Bond	245.1	35.7	0.5	35.2	14.4
Calhoun	165.8	60.7	.9	59.8	36.1
Clark	323.2	68.5	1.6	66.9	20.7
Clay	297.0	47.1	.7	46.4	15.6
Clinton	318.7	52.1	.7	51.4	16.1
Crawford	282.9	47.4	.7	46.7	16.5
Cumberland	221.4	37.8	.5	37.3	16.8
Edwards	144.0	19.7	.3	19.4	13.5
Effingham	308.5	54.5	.8	53.7	17.4
Fayette	459.5	94.5	2.2	92.3	20.1
Greene	347.5	54.8	.8	54.0	15.5
Jasper	316.8	44.1	.6	43.5	13.7
Jefferson	367.4	65.6	.9	64.7	17.6
Jersey	239.4	55.6	3.1	52.5	21.9
Lawrence	239.4	43.5	1.3	42.2	17.6
Macoupin	558.1	83.1	1.5	81.6	14.6
Madison	467.8	54.2	.9	53.3	11.4
Marion	371.2	72.7	1.0	71.7	19.3
Monroe	243.2	52.0	.7	51.3	21.1
Montgomery	451.8	48.1	.7	47.4	10.5
Richland	233.0	37.6	.5	37.1	15.9
St. Clair	428.8	58.3	.7	57.6	13.4
Shelby	494.1	62.8	.9	61.9	12.5
Wabash	141.4	19.2	.3	18.9	13.4
Washington	361.6	51.7	.7	51.0	14.1
Wayne	457.5	71.5	1.1	70.4	15.4
Total	8,485.1	1,392.8	24.6	1,368.2	16.1
		SOUTHERN UNIT			
Alexander	143.4	67.6	4.0	63.6	44.4
Franklin	277.8	55.0	1.2	53.8	19.4
Gallatin	209.9	54.9	2.3	52.6	25.1
Hamilton	278.4	54.4	1.2	53.2	19.1
Hardin	117.1	55.3	1.0	54.3	46.4
Jackson	385.9	134.7	4.4	130.3	33.8
Johnson	220.8	84.0	2.6	81.4	36.9
Massac	157.4	42.1	2.1	40.0	25.4
Perry	283.5	61.1	1.4	59.7	21.1
Pope	243.8	146.5	7.0	139.5	57.2
Pulaski	130.6	30.6	.6	30.6	23.4
Randolph	380.1	74.6	1.8	72.8	19.2
Saline	245.8	51.0	1.1	49.9	20.3
Union	265.0	97.2	9.3	87.9	33.2
White	320.6	36.7	.8	35.9	11.2
Williamson	273.4	82.9	1.8	81.1	29.7
Total	3,933.5	1,128.6	42.6	1,086.0	27.6
State total	35,795.2	3,871.3	109.9	3,761.4	10.5

1/ From U.S. Bureau of the Census, Land and Water Area of the U.S., 1960

Table 16.--Number of growing-stock trees on commercial forest land, by species and diameter classes, Illinois, 1962

(In thousand trees)

Species	All diameters	Diameter (inches at breast height) 1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0 and larger
Softwoods:													
Shortleaf and loblolly pine	11,450	3,330	4,220	2,800	960	130	10	-	-	-	-	-	-
Cypress	200	30	30	-	-	-	70	30	-	-	40	-	-
Redcedar	3,170	1,470	1,140	440	40	60	-	20	-	-	-	-	-
Other	1,310	650	470	120	60	10	-	-	-	-	-	-	-
Total softwoods	16,130	5,480	5,860	3,360	1,060	200	80	50	-	-	40	-	-
Hardwoods:													
Select white oak	66,580	6,030	16,530	14,820	8,560	6,090	5,010	3,550	2,670	1,670	1,580	60	10
Select red oak	16,060	4,650	2,000	1,420	1,900	1,670	1,400	870	550	520	1,040	40	-
Other white oak	24,010	2,810	7,110	5,900	3,350	1,960	1,400	690	440	150	190	10	-
Other red oak	74,750	15,050	18,660	14,010	9,420	6,830	3,970	2,070	2,070	1,100	1,500	70	-
Select hickory	84,540	34,490	22,860	11,640	7,610	3,860	1,960	1,130	610	180	200	-	-
Other hickory	38,240	8,630	14,420	7,310	3,930	1,830	1,000	330	350	280	160	-	-
Hard maple	20,400	7,830	4,340	2,810	1,760	1,510	560	890	280	180	240	-	-
Beech	940	320	30	170	10	60	50	60	80	110	50	-	-
Black walnut	12,840	1,600	3,290	2,910	2,160	1,320	410	680	250	120	100	-	-
Ash	50,330	12,160	11,200	13,350	6,080	3,260	1,890	930	620	350	470	20	-
Elm	96,300	30,590	26,380	17,550	9,390	4,890	3,170	1,740	1,140	640	740	70	-
Soft maple	39,440	13,020	7,400	6,620	3,980	2,830	2,150	1,470	900	470	520	70	10
Sweetgum	9,860	4,370	1,380	1,390	670	690	530	280	150	130	260	10	-
Blackgum	1,860	540	270	230	380	80	90	130	80	30	30	-	-
Cottonwood	7,870	1,210	2,250	660	1,100	840	360	270	230	350	540	60	-
Aspen	3,740	250	1,600	1,770	70	-	-	-	-	20	30	-	-
Sycamore	9,180	1,810	2,040	1,580	1,320	460	460	410	360	250	380	80	30
Yellow-poplar	6,610	4,180	820	390	390	250	100	110	190	110	70	-	-
Basswood	2,890	-	1,290	410	500	250	-	150	120	60	110	-	-
Other soft hdwds.	46,660	17,580	12,140	7,150	4,130	2,910	1,340	610	360	260	180	-	-
Other hard hdwds.	41,520	20,320	10,070	6,210	2,420	1,170	410	390	290	100	130	10	-
Total hardwoods	654,620	187,440	166,080	118,300	69,130	42,760	26,260	16,760	11,740	7,080	8,520	500	50
All species	670,750	192,920	171,940	121,660	70,190	42,960	26,340	16,810	11,740	7,080	8,560	500	50

Table 17.--Number of cull and salvable dead trees on commercial forest land, by species and diameter classes, Illinois, 1962

(In thousand trees)

Species and diameter class (inches)	Cull trees	Salvable dead trees
Softwoods:		
5.0 - 8.9	240	-
9.0 - 18.9	160	-
19.0 and larger	-	-
Total	400	-
Hardwoods:		
5.0 - 10.9	56,400	480
11.0 - 18.9	12,020	110
19.0 and larger	3,690	70
Total	72,110	660
All species	72,510	660

Table 18.--Volume of timber on commercial forest land, by tree and species classes, Illinois, 1962 [1/]

(In thousand cubic feet)

Tree class	All species	Softwoods	Hardwoods
Growing stock:			
Sawtimber			
Saw log portion	1,313,709	5,506	1,308,203
Upper stem portion	209,963	-	209,963
Total sawtimber	1,523,672	5,506	1,518,166
Poletimber	820,558	10,689	809,869
Total growing stock	2,344,230	16,195	2,328,035
Sound cull:			
Sawtimber	28,361	40	28,321
Poletimber	23,321	31	23,290
Total sound cull	51,682	71	51,611
Rotten cull:			
Sawtimber	6,438	-	6,438
Poletimber	1,904	-	1,904
Total rotten cull	8,342	-	8,342
Salvable dead:			
Sawtimber	6,376	-	6,376
Poletimber	1,746	-	1,746
Total salvable dead	8,122	-	8,122
All classes	[1/] 2,412,376	16,266	2,396,110

[1/] Estimates of additional volume on unproductive forest land total 1,800 thousand cubic feet in trees 5.0 inches and larger d.b.h., including 500 thousand cubic feet of softwoods and 1,300 thousand cubic feet of hardwoods.

Table 19.--Volume of growing stock and sawtimber on commercial forest land, by ownership and species classes, Illinois, 1962

GROWING STOCK
(In thousand cubic feet)

Ownership class	All species	Softwoods	Hardwoods
National Forest	120,396	11,139	109,257
Other public	44,430	387	44,043
Forest industry	7,860	1,382	6,478
Farmer and misc. private	2,171,544	3,287	2,168,257
All ownerships	2,344,230	16,195	2,328,035

SAWTIMBER
(In thousand board feet)[1/]

National Forest	365,100	5,800	359,300
Other public	152,590	240	152,350
Forest industry	32,390	7,870	24,520
Farmer and misc. private	8,026,350	14,070	8,012,280
All ownerships	8,576,430	27,980	8,548,450

1/ International 1/4-inch rule.

Table 20.--Volume of growing stock and sawtimber on commercial forest land, by stand-size and species classes, Illinois, 1962

GROWING STOCK
(In thousand cubic feet)

Stand-size class	All species	Softwoods	Hardwoods
Sawtimber	1,787,817	4,329	1,783,488
Poletimber	480,723	10,894	469,829
Sapling and seedling	74,481	664	73,817
Nonstocked	1,209	308	901
All classes	2,344,230	16,195	2,328,035

SAWTIMBER
(In thousand board feet)[1/]

Sawtimber	7,630,730	21,940	7,608,790
Poletimber	775,040	6,040	769,000
Sapling and seedling	170,360	-	170,360
Nonstocked	300	-	300
All classes	8,576,430	27,980	8,548,450

1/ International 1/4-inch rule.

Table 21.--Volume of growing-stock trees on commercial forest land, by species and diameter classes, Illinois, 1962

(In thousand cubic feet)

Species	All diameters	Diameter class (inches at breast height)									
		5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0 & larger
Softwoods:											
Shortleaf and loblolly pine	10,910	5,214	4,321	1,185	190	-	-	-	-	-	-
Cypress	3,729	8	-	-	987	577	-	-	2,157	-	-
Other	1,556	829	317	213	-	197	-	-	-	-	-
Total softwoods	16,195	6,051	4,638	1,398	1,177	774	-	-	2,157	-	-
Hardwoods:											
Select white oak	401,794	26,560	35,819	45,346	56,027	60,087	57,062	46,728	68,248	5,064	853
Select red oak	149,934	3,184	9,188	13,509	18,605	15,958	14,378	15,223	55,782	3,989	118
Other white oak	80,991	9,828	12,703	13,217	15,484	9,180	7,939	3,184	8,808	648	-
Other red oak	351,487	27,373	40,590	50,948	46,539	32,311	45,773	31,742	71,116	4,305	790
Hickory	235,009	32,832	45,385	43,584	32,074	25,296	22,824	14,299	18,715	-	-
Hard maple	63,903	5,459	6,747	12,063	5,601	12,553	5,941	4,574	10,965	-	-
Soft maple	177,695	12,916	18,273	25,083	26,552	26,062	22,633	14,607	24,798	5,238	1,533
Beech	8,389	197	39	213	245	838	1,722	2,623	2,512	-	-
Sweetgum	54,573	2,528	2,433	6,849	7,971	5,672	4,369	5,285	17,428	2,038	-
Tupelo and blackgum	10,681	427	1,967	719	758	2,378	1,817	743	1,872	-	-
Ash	157,913	23,013	23,961	25,699	21,741	15,231	14,291	9,180	22,381	1,903	513
Cottonwood and aspen	95,401	4,408	5,933	7,600	4,661	6,178	7,023	15,105	36,798	7,284	411
Basswood	15,784	584	1,841	1,477	-	2,560	1,525	1,975	5,427	395	-
Yellow-poplar	21,417	577	1,912	2,323	1,319	2,251	5,364	3,903	3,768	-	-
Black walnut	44,935	5,404	7,845	8,516	3,452	9,377	4,147	2,812	3,382	-	-
Other	458,129	47,977	65,972	68,848	62,315	51,153	46,412	37,470	58,373	15,335	4,274
Total hardwoods	2,328,035	203,267	280,608	325,994	303,344	277,085	263,220	209,453	410,373	46,199	8,492
All species	2,344,230	209,318	285,246	327,392	304,521	277,859	263,220	209,453	412,530	46,199	8,492

Table 22.--Volume of sawtimber on commercial forest land, by species and diameter classes, Illinois, 1962

(In thousand board feet)[1/]

Species	All diameters	Diameter class (inches at breast height)							
		9.0-10.9[2/]	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0 and larger
Softwoods:									
Shortleaf and loblolly pine	5,700	4,900	800	-	-	-	-	-	-
Cypress	21,070	-	4,210	3,290	-	-	13,570	-	-
Other	1,210	340	-	870	-	-	-	-	-
All softwoods	27,980	5,240	5,010	4,160	-	-	13,570	-	-
Hardwoods:									
Select white oak	1,722,150	-	299,700	334,400	345,210	282,820	423,220	31,340	5,460
Select red oak	751,620	-	105,810	92,800	84,920	91,490	350,950	24,700	950
Other white oak	253,980	-	83,060	47,910	45,880	19,970	52,960	4,200	-
Other red oak	1,338,730	-	230,720	183,710	266,400	191,940	432,660	28,530	4,770
Hickory	620,520	-	160,700	139,510	128,140	84,320	107,850	-	-
Hard maple	233,840	-	29,180	73,030	35,820	27,990	67,820	-	-
Soft maple	624,030	-	118,420	123,070	120,400	77,850	142,790	31,490	10,010
Beech	45,760	-	880	4,960	9,440	14,830	15,650	-	-
Sweetgum	235,760	-	34,500	29,660	22,150	30,090	105,830	13,530	-
Tupelo and blackgum	41,030	-	3,840	11,470	9,730	3,930	12,060	-	-
Ash	427,810	-	91,100	71,120	71,420	51,570	127,920	11,420	3,260
Cottonwood and aspen	462,620	-	19,830	32,450	41,160	89,000	232,690	45,060	2,430
Basswood	66,490	-	-	13,080	9,020	11,500	30,550	2,340	-
Yellow-poplar	96,800	-	5,640	12,330	32,540	20,850	25,440	-	-
Black walnut	114,360	-	16,220	43,190	18,910	17,120	18,920	-	-
Other	1,512,950	-	326,530	279,330	258,290	209,520	337,440	80,960	20,880
Total hardwoods	8,548,450	-	1,526,130	1,492,020	1,499,430	1,224,790	2,484,750	273,570	47,760
All species	8,576,430	5,240	1,531,140	1,496,180	1,499,430	1,224,790	2,498,320	273,570	47,760

1/ International 1/4-inch rule.
2/ Softwoods only.

Table 23.--Volume of growing stock on commercial forest land, by species and Forest Survey Units, Illinois, 1962

(In thousand cubic feet)

Species	All units	Prairie	Claypan	Southern
Softwoods:				
Shortleaf and loblolly pine	10,910	-	40	10,870
Cypress	3,729	-	2,338	1,391
Redcedar	1,153	466	150	537
Other	403	387	-	16
Total softwoods	16,195	853	2,528	12,814
Hardwoods:				
Select white oak	401,794	143,061	146,047	112,686
Select red oak	149,934	70,413	41,483	38,038
Other white oak	80,991	822	46,081	34,088
Other red oak	351,487	75,429	155,030	121,028
Select hickory	148,322	35,858	62,750	49,714
Other hickory	86,687	14,015	40,527	32,145
Hard maple	63,903	38,386	14,425	11,092
Beech	8,389	-	4,423	3,966
Black walnut	44,935	26,536	10,752	7,647
Ash	157,913	34,918	74,947	48,048
Elm	227,789	98,079	80,525	49,185
Soft maple	177,695	64,219	71,195	42,281
Sweetgum	54,573	-	33,101	21,472
Tupelo and blackgum	10,681	450	5,546	4,685
Cottonwood	90,005	21,867	42,510	25,628
Aspen	5,396	5,396	-	-
Sycamore	81,180	30,391	30,897	19,892
Yellow-poplar	21,417	-	9,535	11,882
Basswood	15,784	12,024	2,259	1,501
Other soft hardwoods	96,206	39,705	31,790	24,711
Other hard hardwoods	52,954	15,531	22,697	14,726
Total hardwoods	2,328,035	727,100	926,520	674,415
All species	2,344,230	727,953	929,048	687,229

Table 24.--Volume of sawtimber on commercial forest land, by species and Forest Survey units, Illinois, 1962

(In thousand board feet)[1/]

Species	All units	Prairie	Claypan	Southern
Softwoods:				
Shortleaf and loblolly pine	5,700	-	-	5,700
Cypress	21,070	-	13,200	7,870
Redcedar	970	870	-	100
Other	240	240	-	-
Total softwoods	27,980	1,110	13,200	13,670
Hardwoods:				
Select white oak	1,722,150	653,280	604,990	463,880
Select red oak	751,620	386,630	194,370	170,620
Other white oak	253,980	-	149,660	104,320
Other red oak	1,338,730	237,140	619,430	482,160
Select hickory	394,150	89,730	172,460	131,960
Other hickory	226,370	31,290	110,240	84,840
Hard maple	233,840	158,070	43,620	32,150
Beech	45,760	-	24,940	20,820
Black walnut	114,360	66,170	28,060	20,130
Ash	427,810	91,150	204,890	131,770
Elm	801,400	392,060	253,450	155,890
Soft maple	624,030	238,860	239,940	145,230
Sweetgum	235,760	-	142,540	93,220
Tupelo and blackgum	41,030	2,770	20,780	17,480
Cottonwood	452,350	119,300	205,920	127,130
Aspen	10,270	10,270	-	-
Sycamore	344,490	128,250	130,940	85,300
Yellow-poplar	96,800	-	41,650	55,150
Basswood	66,490	55,880	6,110	4,500
Other soft hardwoods	234,520	75,560	94,640	64,320
Other hard hardwoods	132,540	53,720	48,230	30,590
Total hardwoods	8,548,450	2,790,130	3,336,860	2,421,460
All species	8,576,430	2,791,240	3,350,060	2,435,130

1/ International 1/4-inch rule.

Table 25.--Volume of sawtimber on commercial forest land, by species and log grades, Illinois, 1962

(In thousand board feet)[1/]

Species	All grades	Log grades		
		Grade F-1	Grade F-2	Grade F-3 and tie and timber
Softwoods:				
Shortleaf and loblolly pine	5,700	-	5,700	-
Cypress	21,070	-	4,720	16,350
Other	1,210	-	-	1,210
Total softwoods	27,980	-	10,420	17,560
Hardwoods:				
Select white oak	1,722,150	115,300	115,870	1,490,980
Select red oak	751,620	49,860	13,720	688,040
Other white oak	253,980	18,810	15,360	219,810
Other red oak	1,338,730	43,930	31,120	1,263,680
Hickory	620,520	26,490	36,110	557,920
Hard maple	233,840	15,210	15,640	202,990
Soft maple	624,030	11,980	23,880	588,170
Beech	45,760	-	-	45,760
Sweetgum	235,760	37,000	19,050	179,710
Tupelo and blackgum	41,030	7,140	1,260	32,630
Ash	427,810	46,500	24,310	357,000
Cottonwood and aspen	462,620	46,050	11,820	404,750
Basswood	66,490	-	1,820	64,670
Yellow-poplar	96,800	-	6,060	90,740
Black walnut	114,360	9,190	14,870	90,300
Other	1,512,950	76,600	65,450	1,370,900
Total hardwoods	8,548,450	504,060	396,340	7,648,050
All species	8,576,430	504,060	406,760	7,665,610

1/ International 1/4-inch rule.

Table 26.--Volume of salvable dead sawtimber-size trees on commercial forest land, by species, Illinois, 1962

(In thousand board feet)[1/]

Species	Volume
Softwoods	-
Hardwoods	37,690
All species	37,690

1/ International 1/4-inch rule.

Table 27.--Volume of growing stock on commercial forest land, by species, Illinois, 1948 and 1962

(In thousand cubic feet)

Species	1948	1962
Softwoods	11,600	16,195
White oak	621,700	482,785
Red oak	569,200	501,421
Elm	288,100	227,789
Hickory	216,000	235,009
Soft maple	149,400	177,695
Sycamore	57,300	81,180
Cottonwood	50,900	90,005
Ash	97,300	157,913
Hard maple	55,200	63,903
Basswood and yellow-poplar	35,500	37,201
Black walnut	60,600	44,935
Other	202,400	228,199
All species	2,415,200	2,344,230

Table 28.--Volume of sawtimber on commercial forest land, by species, Illinois, 1948 and 1962

(In thousand board feet)[1/]

Species	1948	1962
Softwoods	39,000	27,980
White oak	2,968,000	1,976,130
Red oak	2,815,000	2,090,350
Elm	1,016,000	801,400
Hickory	692,000	620,520
Soft maple	630,000	624,030
Sycamore	310,000	344,490
Cottonwood	295,000	452,350
Ash	270,000	427,810
Hard maple	230,000	233,840
Basswood and yellow-poplar	178,000	163,290
Black walnut	167,000	114,360
Other	648,000	699,880
All species	10,258,000	8,576,430

1/ International 1/4-inch rule.

Table 29.--Volume of growing stock and sawtimber on commercial forest land, by counties, and species classes, Illinois, 1962

PRAIRIE UNIT

County 1/	Growing stock			Sawtimber		
	All species	Soft-woods	Hard-woods	All species	Soft-woods	Hard-woods
	Thousand cu. ft.	Thousand cu. ft.	Thousand cu. ft.	Thousand bd. ft. 2/	Thousand bd. ft. 2/	Thousand bd. ft. 2/
Adams	44,659	40	44,619	155,130	50	155,080
Brown	20,366	8	20,358	66,630	20	66,610
Bureau	14,915	-	14,915	53,610	10	53,600
Carroll	12,632	8	12,624	46,350	10	46,340
Cass	19,078	71	19,007	74,780	110	74,670
Christian	8,105	15	8,090	36,660	20	36,640
Coles	12,308	8	12,300	42,070	20	42,050
Edgar	10,080	-	10,080	36,950	10	36,940
Fulton	52,464	32	52,432	176,770	60	176,710
Hancock	31,932	24	31,908	115,020	30	114,990
Henderson	18,028	16	18,012	61,890	30	61,860
Jo Daviess	34,207	24	34,183	119,520	20	119,500
Knox	30,723	24	30,699	112,860	30	112,830
LaSalle	14,204	-	14,204	45,460	-	45,460
McDonough	17,443	23	17,420	61,280	20	61,260
Marshall	16,069	-	16,069	54,660	10	54,650
Mason	23,645	24	23,621	81,240	40	81,200
Menard	8,808	7	8,801	36,220	20	36,200
Mercer	15,381	15	15,366	55,200	20	55,180
Morgan	17,767	16	17,751	61,550	20	61,530
Ogle	14,220	166	14,054	51,170	100	51,070
Peoria	25,580	24	25,556	90,200	20	90,180
Pike	46,642	32	46,610	153,490	40	153,450
Putnam	8,872	-	8,872	33,850	10	33,840
Rock Island	19,971	15	19,956	73,630	20	73,610
Sangamon	10,705	-	10,705	54,870	20	54,850
Schuyler	33,520	24	33,496	114,840	40	114,800
Scott	11,850	8	11,842	42,790	20	42,770
Tazewell	16,314	24	16,290	59,270	30	59,240
Vermilion	16,321	15	16,306	58,460	30	58,430
Warren	12,940	-	12,940	48,470	10	48,460
Whiteside	8,880	-	8,880	30,750	10	30,740
Woodford	13,651	-	13,651	50,660	10	50,650
Other Prairie Counties	65,673	190	65,483	434,940	200	434,740
Total	727,953	853	727,100	2,791,240	1,110	2,790,130

See footnotes at end of table.

Table 29 (Cont'd)

County 1/	Growing stock			Sawtimber		
	All species	Soft-woods	Hard-woods	All species	Soft-woods	Hard-woods
	Thousand cu. ft.	Thousand cu. ft.	Thousand cu. ft.	Thousand bd. ft. 2/	Thousand bd. ft. 2/	Thousand bd. ft. 2/
CLAYPAN UNIT						
Bond	23,542	40	23,502	82,190	150	82,040
Calhoun	44,193	142	44,051	159,990	750	159,240
Clark	42,139	8	42,131	149,070	-	149,070
Clay	30,810	134	30,676	122,660	780	121,880
Clinton	39,255	261	38,994	162,150	1,510	160,640
Crawford	31,466	103	31,363	117,070	540	116,530
Cumberland	25,699	79	25,620	91,030	410	90,620
Edwards	15,263	79	15,184	58,540	420	58,120
Effingham	33,780	39	33,741	111,840	150	111,690
Fayette	63,832	126	63,706	223,550	690	222,860
Greene	32,690	55	32,635	114,320	300	114,020
Jasper	28,480	8	28,472	89,860	-	89,860
Jefferson	41,799	47	41,752	144,660	220	144,440
Jersey	37,509	47	37,462	131,130	180	130,950
Lawrence	31,545	103	31,442	115,310	600	114,710
Macoupin	56,366	134	56,232	201,870	720	201,150
Madison	35,013	103	34,910	119,760	250	119,510
Marion	39,571	39	39,532	127,180	150	127,030
Monroe	34,728	55	34,673	124,310	190	124,120
Montgomery	32,532	95	32,437	118,980	520	118,460
Richland	26,031	79	25,952	93,880	430	93,450
St. Clair	43,110	269	42,841	168,560	1,510	167,050
Shelby	42,028	103	41,925	146,250	530	145,720
Wabash	12,782	87	12,695	61,890	520	61,370
Washington	34,997	119	34,878	131,450	700	130,750
Wayne	49,888	174	49,714	182,560	980	181,580
Total	929,048	2,528	926,520	3,350,060	13,200	3,336,860
SOUTHERN UNIT						
Alexander	39,476	276	39,200	152,910	610	152,300
Franklin	36,285	111	36,174	132,650	540	132,110
Gallatin	38,204	1,367	36,837	146,850	1,750	145,100
Hamilton	36,743	150	36,593	127,260	780	126,480
Hardin	26,536	1,714	24,822	90,730	700	90,030
Jackson	92,549	751	91,798	327,500	1,800	325,700
Johnson	51,911	213	51,698	175,450	570	174,880
Massac	26,173	158	26,015	104,860	770	104,090
Perry	34,926	158	34,768	118,200	110	118,090
Pope	77,823	5,822	72,001	227,150	2,810	224,340
Pulaski	16,819	87	16,732	86,750	540	86,210
Randolph	55,000	71	54,929	200,750	380	200,370
Saline	32,295	1,446	30,849	95,000	870	94,130
Union	54,518	285	54,233	200,890	420	200,470
White	23,447	126	23,321	100,270	690	99,580
Williamson	44,524	79	44,445	147,910	330	147,580
Total	687,229	12,814	674,415	2,435,130	13,670	2,421,460
State total	2,344,230	16,195	2,328,035	8,576,430	27,980	8,548,450

1/ In the Prairie unit data for counties with less than 8 million cubic feet have been combined and are shown as "other Prairie counties".

2/ International 1/4-inch rule.

Table 30.--Net annual growth of growing stock on commercial forest land, by species and Forest Survey units, Illinois, 1962

(In thousand cubic feet)

Species	All units	Prairie	Claypan	Southern
Softwoods:				
Shortleaf and loblolly pine	1,035	-	15	1,020
Cypress	57	-	38	19
Other	221	88	71	62
Total softwoods	1,313	88	124	1,101
Hardwoods:				
Select white oak	7,803	2,988	2,173	2,642
Select red oak	1,890	1,224	160	506
Other white oak	2,052	149	978	925
Other red oak	15,427	4,474	5,943	5,010
Hickory	9,676	2,674	3,736	3,266
Hard maple	1,732	951	413	368
Soft maple	9,785	2,767	4,392	2,626
Beech	95	-	23	72
Sweetgum	2,111	-	1,229	882
Tupelo and blackgum	460	8	243	209
Ash	7,109	1,583	3,363	2,163
Cottonwood and aspen	4,576	1,663	1,789	1,124
Basswood	533	400	79	54
Yellow-poplar	1,232	-	615	617
Black walnut	2,733	1,625	652	456
Other	16,593	3,311	7,973	5,309
Total hardwoods	83,807	23,817	33,761	26,229
All species	85,120	23,905	33,885	27,330

Table 31.--Net annual growth of sawtimber on commercial forest land, by species and Forest Survey units, Illinois, 1962

(In thousand board feet)[1/]

Species	All units	Prairie	Claypan	Southern
Softwoods:				
Shortleaf and loblolly pine	980	-	-	980
Cypress	80	-	60	20
Other	200	190	-	10
Total softwoods	1,260	190	60	1,010
Hardwoods:				
Select white oak	20,340	7,510	4,850	7,980
Select red oak	4,440	6,410	-2,290	320
Other white oak	6,300	-	3,420	2,880
Other red oak	45,240	13,300	16,120	15,820
Hickory	20,930	3,690	9,160	8,080
Hard maple	5,350	4,380	430	540
Soft maple	29,640	6,620	14,490	8,530
Beech	290	-	-	290
Sweetgum	6,330	-	3,700	2,630
Tupelo and blackgum	920	-	470	450
Ash	14,500	3,750	6,410	4,340
Cottonwood and aspen	15,100	1,440	8,660	5,000
Basswood	600	300	170	130
Yellow-poplar	5,180	-	2,280	2,900
Black walnut	6,820	4,600	1,210	1,010
Other	25,540	1,440	14,660	9,440
Total hardwoods	207,520	53,440	83,740	70,340
All species	208,780	53,630	83,800	71,350

1/ International 1/4-inch rule.

Table 32.--Annual mortality of growing stock and sawtimber on commercial forest land, by species, Illinois, 1962

Species	Growing stock	Sawtimber
	Thousand cu. ft.	Thousand bd. ft. 1/
Softwoods:		
Shortleaf and loblolly pine	20	-
Cypress	-	-
Other	-	-
Total softwoods	20	-
Hardwoods:		
Select white oak	2,176	12,130
Select red oak	2,091	13,260
Other white oak	261	1,480
Other red oak	2,067	8,930
Hickory	585	3,110
Hard maple	-	-
Soft maple	1,252	6,740
Beech	-	-
Sweetgum	-	-
Tupelo and blackgum	-	-
Ash	395	670
Cottonwood and aspen	578	2,950
Basswood	41	170
Yellow-poplar	-	-
Black walnut	39	140
Other	10,805	47,100
Total hardwoods	20,290	96,680
All species	20,310	96,680

1/ International 1/4-inch rule.

Table 33.--Annual mortality of growing stock and sawtimber on commercial forest land, by ownership and species classes, Illinois, 1962

GROWING STOCK
(In thousand cubic feet)

Ownership class	All species	Softwoods	Hardwoods
National Forest	864	16	848
Other public	384	-	384
Forest industry	61	-	61
Farmer and misc. private	19,001	4	18,997
All ownerships	20,310	20	20,290

SAWTIMBER
(In thousand board feet)[1/]

National Forest	3,750	-	3,750
Other public	1,730	-	1,730
Forest industry	270	-	270
Farmer and misc. private	90,930	-	90,930
All ownerships	96,680	-	96,680

1/ International 1/4-inch rule.

Table 34.--Annual mortality of growing stock and sawtimber on commercial forest land, by causes and species classes, Illinois, 1962

GROWING STOCK
(In thousand cubic feet)

Cause of death	All species	Softwoods	Hardwoods
Fire	87	-	87
Insects	3,004	-	3,004
Disease	9,536	-	9,536
Other	3,951	-	3,951
Unknown	3,732	20	3,712
All causes	20,310	20	20,290

SAWTIMBER
(In thousand board feet)[1/]

Fire	110	-	110
Insects	15,170	-	15,170
Disease	45,470	-	45,470
Other	16,300	-	16,300
Unknown	19,630	-	19,630
All causes	96,680	-	96,680

1/ International 1/4-inch rule.

Table 35.--Annual timber cut from growing stock on commercial forest land, by species and Forest Survey units, Illinois, 1961

(In thousand cubic feet)

Species	All units	Prairie	Claypan	Southern
Softwoods:				
Shortleaf and loblolly pine	380	-	-	380
Cypress[1/]	78	1	-	77
Total softwoods	458	1	-	457
Hardwoods:				
Select white oak	6,438	2,927	2,001	1,510
Select red oak	1,421	571	102	748
Other white oak	393	-	224	169
Other red oak	5,519	947	2,321	2,251
Hickory	765	150	123	492
Hard maple	393	129	200	64
Soft maple	4,143	1,906	1,665	572
Beech	32	-	-	32
Sweetgum	412	-	200	212
Tupelo and blackgum	47	-	1	46
Ash	541	140	169	232
Cottonwood and aspen	3,587	1,499	1,291	797
Basswood	829	738	91	-
Yellow-poplar	282	-	12	270
Black walnut	662	579	51	32
Other	4,208	1,885	1,202	1,121
Total hardwoods	29,672	11,471	9,653	8,548
All species	30,130	11,472	9,653	9,005

1/ Nine thousand cubic feet of other softwoods included with cypress.

Table 36.--Annual timber cut from live sawtimber on commercial forest land, by species and Forest Survey units, Illinois, 1961

(In thousand board feet)[1/]

Species	All units	Prairie	Claypan	Southern
Softwoods:				
Shortleaf and loblolly pine	1,940	-	-	1,940
Cypress[2/]	330	-	-	330
Total softwoods	2,270	-	-	2,270
Hardwoods:				
Select white oak	39,760	18,210	12,460	9,090
Select red oak	8,640	3,480	620	4,540
Other white oak	2,140	-	1,230	910
Other red oak	32,380	5,630	13,520	13,230
Hickory	3,170	620	510	2,040
Hard maple	2,410	790	1,230	390
Soft maple	24,000	11,040	9,650	3,310
Beech	200	-	-	200
Sweetgum	2,590	-	1,250	1,340
Tupelo and blackgum	290	-	10	280
Ash	3,050	790	950	1,310
Cottonwood and aspen	22,070	9,220	7,950	4,900
Basswood	4,330	3,850	480	-
Yellow-poplar	1,810	-	80	1,730
Black walnut	4,320	3,780	330	210
Other	21,870	10,400	6,060	5,410
Total hardwoods	173,030	67,810	56,330	48,890
All species	175,300	67,810	56,330	51,160

1/ International 1/4-inch rule.

2/ Forty thousand board feet of other softwoods included with cypress.

Table 37.--Total output of timber products by type of material used and species classes, Illinois, 1961

Product and species class	Total output in standard units		Output from all sources							
			Total	From growing stock		From nongrowing stock		From plant by-products	
	Unit 1/	Number	Thousand cu. ft.	Std. units	Thousand cu. ft.	Std. units	Thousand cu. ft.	Std. units	Thousand cu. ft.
Saw logs and bolts:									
Softwood	M bd. ft.	495	75	495	75	-	-	-	-
Hardwood	M bd. ft.	130,413	19,823	99,505	15,128	30,908	4,695	-	-
Total	M bd. ft.	130,908	19,898	100,000	15,203	30,908	4,695	-	-
Veneer logs and bolts:									
Softwood	M bd. ft.	-	-	-	-	-	-	-	-
Hardwood	M bd. ft.	11,759	1,667	10,865	1,541	894	126	-	-
Total	M bd. ft.	11,759	1,667	10,865	1,541	894	126	-	-
Cooperage logs and bolts:									
Softwood	M bd. ft.	-	-	-	-	-	-	-	-
Hardwood	M bd. ft.	27,419	4,003	20,098	2,934	7,321	1,069	-	-
Total	M bd. ft.	27,419	4,003	20,098	2,934	7,321	1,069	-	-
Pulpwood:									
Softwood	M cords	7	516	5	344	2	172	-	-
Hardwood	M cords	92	6,936	61	4,588	30	2,295	1	53
Total	M cords	99	7,452	66	4,932	32	2,467	1	53
Piling:									
Softwood	M linear ft.	-	-	-	-	-	-	-	-
Hardwood	M linear ft.	1,570	589	1,570	589	-	-	-	-
Total	M linear ft.	1,570	589	1,570	589	-	-	-	-
Mine timbers (round):									
Softwood	M cu. ft.	18	18	13	13	5	5	-	-
Hardwood	M cu. ft.	147	147	106	106	41	41	-	-
Total	M cu. ft.	165	165	119	119	46	46	-	-
Miscellaneous industrial wood: 2/									
Softwood	M cu. ft.	-	-	-	-	-	-	-	-
Hardwood	M cu. ft.	881	881	744	744	130	130	7	7
Total	M cu. ft.	881	881	744	744	130	130	7	7
Posts (round and split):									
Softwood	M pieces	-	-	-	-	-	-	-	-
Hardwood	M pieces	450	260	306	177	144	83	-	-
Total	M pieces	450	260	306	177	144	83	-	-
Fuelwood:									
Softwood	M cords	3/ -	15	-	-	-	-	3/ -	15
Hardwood	M cords	156	11,209	25	1,650	55	3,553	76	6,006
Total	M cords	156	11,224	25	1,650	55	3,553	76	6,021
All products:									
Softwood	M cu. ft.	624	624	432	432	177	177	15	15
Hardwood	M cu. ft.	45,515	45.515	27,457	27,457	11,992	11,992	6,066	6,066
Total	M cu. ft.	46,139	46,139	27,889	27,889	12,169	12,169	6,081	6,081

1/ M (thousand) board feet are measured by the International 1/4-inch rule.
M (thousand) cords are on a rough wood basis (for example, chips converted to equivalent standard cords).

2/ Includes charcoal wood, handle bolts, farm timber, poles, etc.

3/ Less than 500 cords.

Table 38.--Total output of roundwood products by source and species classes, Illinois, 1961

(In thousand cubic feet)

Source	All species	Softwoods	Hardwoods
Growing-stock trees[1/]			
Sawtimber trees	25,329	359	24,970
Poletimber trees	2,560	73	2,487
Total	27,889	432	27,457
Cull trees[1/]	2,945	57	2,888
Salvable dead trees[1/]	1,104	-	1,104
Other sources[2/]	8,120	120	8,000
All sources	40,058	609	39,449

1/ On commercial forest land.
2/ Includes noncommercial forest land, nonforest land (such as fence rows), trees less than 5.0 inches in diameter, and limbwood.

Table 39.--Number of primary wood-using plants by Forest Survey units, Illinois, 1961

Kind of plant [1/]	All units	Prairie	Claypan	Southern
Sawmills:				
Small [2/]	275	112	107	56
Medium [3/]	37	13	13	11
Large [4/]	2	2	-	-
Pulpmills	8	5	3	-
Veneer mills:				
Standard grade	2	2	-	-
Container	6	-	1	5
Charcoal plants	8	3	1	4
Cooperage mills	16	7	6	3
Handle plants	1	-	-	1
All plants	355	144	131	80

1/ Excludes idle mills.
2/ Annual production, less than 1 million board feet.
3/ Annual production, 1 - 2.9 million board feet.
4/ Annual production, 3 million plus board feet.

Table 40.--Annual timber cut from growing stock on commercial forest land, by species, Illinois, 1947 and 1961

(In thousand cubic feet)

Species	1947	1961
Softwoods	85	458
Oak	18,950	13,771
Elm	2,244	1,385
Hickory	2,251	765
Sycamore	940	788
Cottonwood	2,485	3,587
Ash	305	541
Yellow-poplar	269	282
Black walnut	295	662
Sweetgum	618	412
Other	7,904	7,479
All species	36,346	30,130

Table 41.--Annual timber cut from growing stock on commercial forest land, by products and logging residues and species classes, Illinois, 1961

(In thousand cubic feet)

Product and residues	All species	Softwoods	Hardwoods
Roundwood products:			
Saw logs and bolts	15,203	75	15,128
Veneer logs and bolts	1,541	-	1,541
Cooperage logs and bolts	2,934	-	2,934
Pulpwood	4,932	344	4,588
Piling	589	-	589
Mine timbers	119	13	106
Miscellaneous industrial wood 1/	744	-	744
Posts	177	-	177
Fuelwood	1,650	-	1,650
All products	27,889	432	27,457
Logging residues	2,241	26	2,215
Timber cut	30,130	458	29,672

1/ Includes charcoal wood, handle bolts, farm timbers, poles, etc.

Table 42.--Annual timber cut from live sawtimber on commercial forest land, by products and logging residues and species classes, Illinois, 1961

(In thousand board feet)[1/]

Product and residues	All species	Softwoods	Hardwoods
Roundwood products:			
Saw logs and bolts	96,890	390	96,500
Veneer logs and bolts	10,860	-	10,860
Cooperage logs and bolts	20,290	-	20,290
Pulpwood	25,550	1,780	23,770
Piling	3,810	-	3,810
Mine timbers	130	10	120
Miscellaneous industrial wood [2/]	3,070	-	3,070
Posts	520	-	520
Fuelwood	3,902	-	3,920
All products	165,040	2,180	162,860
Logging residues	10,260	90	10,170
Timber cut	175,300	2,270	173,030

1/ International 1/4-inch rule.
2/ Includes charcoal wood, handle bolts, farm timbers, poles, etc.

Table 43.--Volume of unused plant residues by industrial sources and type of residue, and by species classes, Illinois, 1961

(In thousand cubic feet)

Industrial source	Species class and character of residues								
	All species			Softwoods			Hardwoods		
	Total	Coarse [1/]	Fine [2/]	Total	Coarse	Fine	Total	Coarse	Fine
Lumber industry	4,351	1,819	2,532	16	6	10	4,335	1,813	2,522
Veneer industry	267	7	260	-	-	-	267	7	260
Other primary industries	654	531	123	-	-	-	654	531	123
Total	5,272	2,357	2,915	16	6	10	5,256	2,351	2,905

1/ Unused material suitable for chipping, such as slabs, edgings, and veneer cores.
2/ Unused material not suitable for chipping, such as sawdust and shavings.

Table 44.--Annual desirable cut of growing stock on commercial forest land, by species and Forest Survey units, Illinois, 1962

(In thousand cubic feet)

Species	All units	Prairie	Claypan	Southern
Softwoods:				
Shortleaf and loblolly pine	320	-	-	320
Cypress	347	-	218	129
Other	65	57	1	7
Total softwoods	732	57	219	456
Hardwoods:				
Select white oak	22,603	9,612	7,647	5,344
Select red oak	7,774	4,040	1,997	1,737
Other white oak	4,265	-	2,537	1,728
Other red oak	14,500	2,532	6,781	5,187
Hickory	10,773	2,236	4,901	3,636
Hard maple	3,896	2,236	973	687
Soft maple	8,835	3,200	3,523	2,112
Beech	641	-	326	315
Sweetgum	3,137	-	1,917	1,220
Tupelo and blackgum	508	-	256	252
Ash	7,356	1,688	3,505	2,163
Cottonwood and aspen	2,587	1,351	667	569
Basswood	1,020	840	111	69
Yellow-poplar	1,022	-	532	490
Black walnut	1,698	888	480	330
Other	20,854	7,621	8,126	5,107
Total hardwoods	111,469	36,244	44,279	30,946
All species	112,201	36,301	44,498	31,402

Table 45.--Annual desirable cut of live sawtimber on commercial forest land, by species and Forest Survey units, Illinois, 1962

(In thousand board feet)[1/]

Species	All units	Prairie	Claypan	Southern
Softwoods:				
Shortleaf and loblolly pine	20	-	-	20
Cypress	1,940	-	1,210	730
Other	70	70	-	-
Total softwoods	2,030	70	1,210	750
Hardwoods:				
Select white oak	104,980	45,620	35,090	24,270
Select red oak	42,640	23,540	10,570	8,530
Other white oak	14,270	-	8,420	5,850
Other red oak	62,930	9,970	30,440	22,520
Hickory	33,740	7,310	14,940	11,490
Hard maple	14,120	9,020	2,950	2,150
Soft maple	32,960	13,040	12,360	7,560
Beech	3,270	-	1,760	1,510
Sweetgum	14,200	-	8,660	5,540
Tupelo and blackgum	1,840	-	940	900
Ash	23,080	5,120	11,050	6,910
Cottonwood and aspen	11,920	6,510	3,000	2,410
Basswood	4,450	3,930	320	200
Yellow-poplar	4,440	-	2,400	2,040
Black walnut	5,790	3,480	1,360	950
Other	73,700	26,520	28,920	18,260
Total hardwoods	448,330	154,060	173,180	121,090
All species	450,360	154,130	174,390	121,840

1/ International 1/4-inch rule.

Table 46.--Net annual growth, annual cut, and desirable cut of growing stock on commercial forest land, by species classes and ownership classes, Illinois, 1962

(In thousand cubic feet)

NET ANNUAL GROWTH

Species class	All owners	National Forest	Other public	Forest industry	Farmer and miscellaneous private
Softwoods	1,313	948	51	111	203
Hardwoods	83,807	4,977	1,961	136	76,733
All species	85,120	5,925	2,012	247	76,936
ANNUAL TIMBER CUT 1/					
Softwoods	458	107	-	1	350
Hardwoods	29,672	329	336	393	28,614
All species	30,130	436	336	394	28,964
DESIRABLE CUT					
Softwoods	732	326	57	123	226
Hardwoods	111,469	3,882	2,677	186	104,724
All species	112,201	4,208	2,734	309	104,950

1/ Annual timber cut figures are for 1961.

Table 47.--Net annual growth, annual cut, and desirable cut of sawtimber on commercial forest land, by species classes and by ownership classes, Illinois, 1962

(In thousand board feet) 1/

NET ANNUAL GROWTH

Species class	All owners	National Forest	Other public	Forest industry	Farmer and miscellaneous private
Softwoods	1,260	990	50	20	200
Hardwoods	207,520	17,790	7,090	370	182,270
All species	208,780	18,780	7,140	390	182,470
ANNUAL TIMBER CUT 2/					
Softwoods	2,270	560	-	-	1,710
Hardwoods	173,030	2,050	1,820	2,460	166,700
All species	175,300	2,610	1,820	2,460	168,410
DESIRABLE CUT					
Softwoods	2,030	20	370	150	1,490
Hardwoods	448,330	13,770	16,240	850	417,470
All species	450,360	13,790	16,610	1,000	418,960

1/ International 1/4-inch rule.
2/ Annual timber cut figures are for 1961.

Table 48.--Surplus and shortage[1] in growing stock and sawtimber, by species and Forest Survey units, Illinois, 1962

Species	Growing stock in: All units	Prairie	Claypan	Southern	Sawtimber in: All units	Prairie	Claypan	Southern
	Thousand cu. ft.	Thousand cu. ft.	Thousand cu. ft.	Thousand cu. ft.	Thousand bd. ft.[2]	Thousand bd. ft.[2]	Thousand bd. ft.[2]	Thousand bd. ft.[2]
Softwoods:								
Shortleaf and loblolly pine	- 60	-	-	- 60	- 1,920	-	-	- 1,920
Cypress [3]	+ 334	+ 56	+ 219	+ 59	+ 1,680	+ 70	+ 1,210	+ 400
Total softwoods	+ 274	+ 56	+ 219	- 1	- 240	+ 70	+ 1,210	- 1,520
Hardwoods:								
Select white oak	+16,165	+ 6,685	+ 5,646	+ 3,834	+ 65,220	+27,410	+ 22,630	+15,180
Select red oak	+ 6,353	+ 3,469	+ 1,895	+ 989	+ 34,000	+20,060	+ 9,950	+ 3,990
Other white oak	+ 3,872	-	+ 2,313	+ 1,559	+ 12,130	-	+ 7,190	+ 4,940
Other red oak	+ 8,981	+ 1,585	+ 4,460	+ 2,936	+ 30,550	+ 4,340	+ 16,920	+ 9,290
Hickory	+10,008	+ 2,086	+ 4,778	+ 3,144	+ 30,570	+ 6,690	+ 14,430	+ 9,450
Hard maple	+ 3,503	+ 2,107	+ 773	+ 623	+ 11,710	+ 8,230	+ 1,720	+ 1,760
Soft maple	+ 4,692	+ 1,294	+ 1,858	+ 1,540	+ 8,960	+ 2,000	+ 2,710	+ 4,250
Beech	+ 609	-	+ 326	+ 283	+ 3,070	-	+ 1,760	+ 1,310
Sweetgum	+ 2,725	-	+ 1,717	+ 1,008	+ 11,610	-	+ 7,410	+ 4,200
Tupelo and blackgum	+ 461	-	+ 255	+ 206	+ 1,550	-	+ 930	+ 620
Ash	+ 6,815	+ 1,548	+ 3,336	+ 1,931	+ 20,030	+ 4,330	+ 10,100	+ 5,600
Cottonwood and aspen	- 1,000	- 148	- 624	- 228	- 10,150	- 2,710	- 4,950	- 2,490
Basswood	+ 191	+ 102	+ 20	+ 69	+ 120	+ 80	- 160	+ 200
Yellow-poplar	+ 740	-	+ 520	+ 220	+ 2,630	-	+ 2,320	+ 310
Black walnut	+ 1,036	+ 309	+ 429	+ 298	+ 1,470	- 300	+ 1,030	+ 740
Other	+16,646	+ 5,736	+ 6,924	+ 3,986	+ 51,830	+16,120	+ 22,860	+12,850
Total hardwoods	+81,797	+24,773	+34,626	+22,398	+275,300	+86,250	+116,850	+72,200
All species	+82,071	+24,829	+34,845	+22,397	+275,060	+86,320	+118,060	+70,680

1/ Positive numbers show the volumes that could be taken in addition to the actual cut; negative numbers indicate overcutting.

2/ International 1/4-inch rule.

3/ Includes other softwoods.

Table 49.--Timber growth projections, Illinois, 1962 to 1992[1/]

GROWING STOCK

(In thousand cubic feet)

Year	Timber volumes			Assumed cut			Projected growth		
	All species	Soft-woods	Hard-woods	All species	Soft-woods	Hard-woods	All species	Soft-woods	Hard woods
1962	2,344,200	16,200	2,328,000	30,100	400	29,700	85,100	1,300	83,800
1972	2,976,500	23,700	2,952,800	34,700	600	34,100	104,900	1,900	103,000
1982	3,769,300	35,700	3,733,600	40,900	800	40,100	126,500	2,900	123,600
1992	4,703,500	56,000	4,647,500	49,400	900	48,500	147,700	4,500	143,200

SAWTIMBER

(In thousand board feet)[2/]

1962	8,576,000	28,000	8,548,000	175,000	2,000	173,000	209,000	1,000	208,000
1972	10,549,000	30,000	10,519,000	202,000	1,000	201,000	395,000	2,000	393,000
1982	13,470,000	30,000	13,440,000	239,000	2,000	237,000	529,000	3,000	526,000
1992	17,518,000	37,000	17,481,000	289,000	3,000	286,000	682,000	4,000	678,000

1/ The outlook for timber volumes, growth and cut to 1992 is based on assumptions that: (1) Annual timber production in the United States and Illinois will rise with estimated increases in population and national income; (2) wood will maintain its relative position in the national economy; (3) forestry will continue to advance at the rate indicated by recent trends, and (4) Illinois' proportion of the wood market will increase somewhat. The assumed trends anticipate continuing reforestation, "thickening up" of natural stands, improved cutting practices and forest managment, and other changes leading to a more productive forest resource.

2/ International 1/4-inch rule.

Essex, Burton L., and Gansner, David A.
1965. Illinois' timber resources. Lake States Forest Expt. Sta., St. Paul, Minn. 56 pp., illus. (U.S. Forest Serv. Resource Bul. LS-3)

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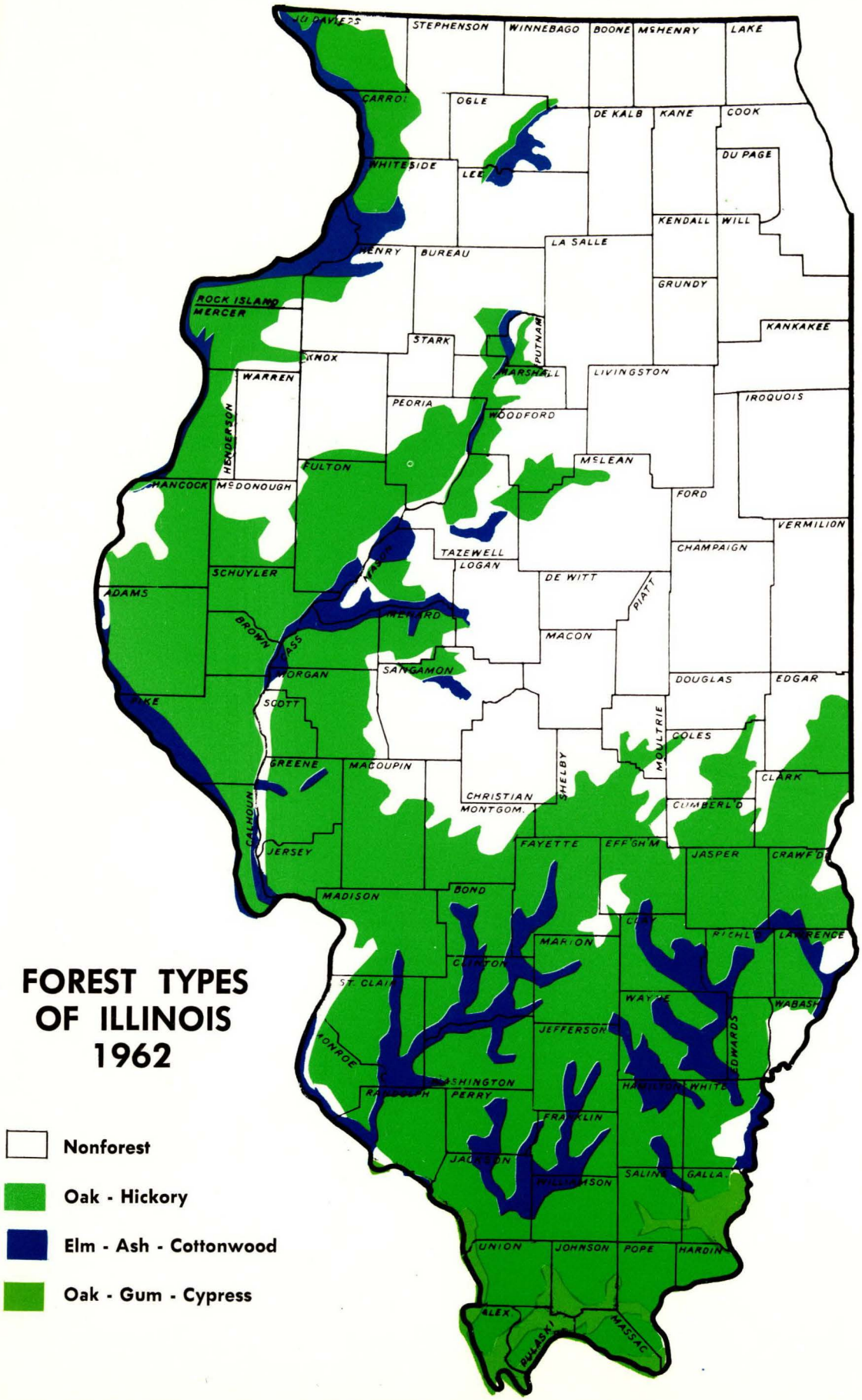

FOREST TYPES OF ILLINOIS 1962

- Nonforest
- Oak - Hickory
- Elm - Ash - Cottonwood
- Oak - Gum - Cypress

PREVIOUS REPORTS ON ILLINOIS' FORESTS

The Forest Survey reports listed below show statistics of Illinois timber production and use. Copies of those reports published by the Central States Forest Experiment Station may be obtained by writing to the Lake States Forest Experiment Station, St. Paul Campus, St. Paul, Minn. 55101.

KING, D. B., and WINTERS, R. K.

1952. Forest resources and industries of Illinois. Univ. Ill., Agr. Expt. Sta. Bul. 562, 95 pp., illus.

MENDEL, JOSEPH J., and GANSNER, DAVID A.

1962. Veneer log production and consumption in the Central States. U.S. Forest Serv. Central States Forest Expt. Sta. Tech. Paper 189, 7 pp., Columbus, Ohio.

GANSNER, DAVID A.

1963. 1961 charcoal production in the Central States. U.S. Forest Serv. Res. Note CS-1, 4 pp. Central States Forest Expt. Sta., Columbus, Ohio.

GANSNER, DAVID A., and KNUTSON, ROBERT G.

1963. Illinois produces 122 million board feet of lumber in 1961. U.S. Forest Serv. Res. Note CS-3, 4 pp. Central States Forest Expt. Sta., Columbus, Ohio.

GANSNER, DAVID A.

1963. Consumption and harvest of veneer logs in the Central States—1963. U.S. Forest Serv. Res. Note CS-26, 8 pp. Central States Forest Expt. Sta., Columbus, Ohio.

DEBALD, PAUL S., and GANSNER, DAVID A.

1964. Timber volume in Illinois counties. U.S. Forest Serv. Res. Note CS-25, 6 pp. Central States Forest Expt. Sta., Columbus, Ohio.

ESSEX, BURTON L., and GANSNER, DAVID A.

1964. Forest area in Illinois by counties, 1962. U.S. Forest Serv. Res. Note CS-21, 4 pp. Central States Forest Expt. Sta., Columbus, Ohio.

GANSNER, DAVID A.

1964. Pulpwood production and consumption in the Central States. U.S. Forest Serv. Res. Note CS-23, 4 pp. Central States Forest Expt. Sta., Columbus, Ohio.

GANSNER, DAVID A.

1964. Cooperage logs and bolts—production and consumption in the Central States. U.S. Forest Serv. Res. Note CS-22, 4 pp. Central States Forest Expt. Sta., Columbus, Ohio.